

University of Wolverhampton

# Towards auto/pedagogy:

A reflexive auto/biographic case study of professional learning mediated by technology

Simon Hughes

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## Abstract

Tracing the development of my thinking and professional practice from the late 1980s to the present day, this thesis uses the auto/biographic method developed at CCCU by Linden West (e.g. West, 2004), in combination with a personal, reflexive dialogic hermeneutic redolent of the epistemological approaches of liberation theologians in the 1970s and 1980s, to evaluate critically the influence of five illustrative moments on the generation of new knowledge. The thesis argues that demonstrable learning gains were made when particular factors came together in these autobiographical moments. The insertion of the slash "/" in auto/biography denotes the self-directed reflection on these narratives, carried out systematically in order to derive meaning from them. The process of critical reflection on the narratives interwoven with reading around epistemology, the self and (information) technology, led to a framework emerging. Within the illustrative moments there appear to be four factors that, in combination, cause learning to occur: need, knowledge, networks and the application of newly-acquired knowledge in a new context or setting. Phonically, the framework can be argued to be N<sup>4</sup>. I argue that in the 21st Century, especially where what is to be learned is something technological, learning most likely occurs when all these factors are present. Recognising this to be a personal phenomenon I adopt the term auto/pedagogy to describe it since I believe that learning is a personal commitment to changing the state of one's being.

## Acknowledgements

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Over the 12 years of this process, I have relied on the support of my family. In both the foreground of some of its pages and in many aspects of the sub-text, they appear. The thesis is, therefore, dedicated to Sheila, Mary, Ellen, Anna and Sarah.

It also acknowledges Alan Turing, Seymour Papert, Steve Jobs, Bill Gates, Jimmy Wales, Larry Page, Sergey Brin and Mark Zuckerberg who, it could be argued, over the lifetime of this project, have changed learning, one invention at a time.

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## Foreword

Whilst every effort has been made to write this thesis in plain English, there are some moments when technical language is unavoidable. Where necessary some of that language has been changed into metaphors in the interests of clarity or to make understanding easier.

Throughout, UK English spellings have been adopted for critical terms like *programme* - meaning an organised system of study - but rendered in the US English form - e.g. *program* - when a specificity of language is necessary to identify, describe or analyse the phenomenon in focus. This accounts for the American use of a 'z' in the spelling of terms like globalization as opposed to an 's' in the English version.

Where a quotation does not conform to these rules, a verbatim presentation of the words is recorded.

Permission was granted by the two school leaders whose 'tweets' are cited in Chapter 2.3 and these are available on request.

# **Glossary of Abbreviations**

Commonly occurring accronyms in the thesis

BETT - British Educational Technology Trade fair

CCCU - Canterbury Christ Church University

CILT - The National Centre for Languages

CPD - Continuing Professional Development

HE - Higher Education

IM - Illustrative Moment

IPRN - Initial Teacher Education Professional Resource Network

ITE - Initial Teacher Education

PC - Personal Computer

RE-Net - Subject Resource Network for tutors of Religious Education

SRN - Subject Resource Network

TDA - Training and Development Agency for Schools

TTA - Teacher Training Agency

TTRB - Teacher Training Resource Bank

URL - Uniform Resource Locator

WYSIWYG - What You See Is What You Get

## Chapter 1: Introduction

This is a thought experiment (Polanyi, 1962; Robinson, 2011,). It is an attempt to define and describe the way in which profound professional learning occurs in the 21st Century. I have chosen to name this phenomenon '*auto/pedagogy*'. I continue by exploring the critical factors that seem to contribute to auto/pedagogy and work these into a framework that might become useful for others attempting to both analyse the effectiveness of teacher's contemporary continuing professional development (CPD) programmes, or structure new ones fit for purpose in the constantly-shifting context of education.

In order to do this, I have undertaken structured reflections on five 'illustrative moments' in my own professional learning journey. Such activity is in keeping with the auto/biographic method developed by West (2004) and with the hermeneutic processes of liberation theologians (Gutierrez, 1971), writers who noted the importance of each learner understanding her/his own context and being able to extract meaning from it. My professional life has, for the last twenty years, been dominated by information and communications technology (ICT), such that I find myself no longer a teacher of religious education but an adviser and consultant, much of whose work is education-technology related.

About ten years ago, it occurred to me that ICT had been a significant factor in the evolution of my career. I began to reflect on this and realised that it had also been the means whereby I had gathered knowledge, skills, understanding and toolkits which had enabled me to respond to each new career challenge. It was as if my professional learning was both caused by and facilitated through technology. On deeper reflection, I began to notice that there were some 'moments' in my career where the learning had been so profound that I had almost ended up on a different

career path. Such moments have been referred to as 'critical incidents' (Jasper, 2003). I have chosen to attenuate this term to 'illustrative moments'; the reasons for doing so are set out in chapter 3 where I also set out a rationale for selecting the five particular moments as the objects of research for the study.

At the same time, and symbiotically, I was developing the need to find ways of improving colleagues' access to, engagement with and confidence in, ICT. Intellectually, I wrestled with how best to provide training and professional learning opportunities that would be inclusive and inspirational for them as opposed to alienating and discomforting. Not everyone, I noticed, was as enthralled by the possibilities of the newly-emerging technology as me; nor were they keen to invest the time needed to learn. I began to wonder, then, if there was anything to be learned from my own story with technology that might enable me to understand professional learning better.

A major reason for undertaking this research was, therefore, to ascertain if there exist any characteristics or consistently-occurring phenomena in my auto/biography<sup>1</sup> that might point to a tool, framework or construct that could be useful for others in similar professional learning contexts. The intention was not to create a new learning technology, nor to develop a series of learning materials, or even a textbook. It was more about investigating and identifying the conditions or factors by which my own professional learning occurs so others might similarly understand more about their own professional learning. Thus, a more efficient framework for professional learning for which I had been searching might emerge.

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<sup>1</sup> The etymology and methodology of auto/biography are set out in section 3.1.4

## ***De Profundis***

What do I mean by 'profound'? I have chosen to use this word to characterise the professional learning that occurred in the five illustrative moments rather than 'surface' or 'deep'. Oscar Wilde's incarceration in Reading Gaol was unarguably a critical incident in his life. His essay '*De Profundis*' (Wilde, 2012) is an extraordinary window into the spiritual and metaphysical insights he developed during this time. The theological reflections and musings might never have emerged had he not been subject to this experience. His choice of the title *De Profundis* signals his intention to theologise on the nature of suffering since it is a direct adoption of the title of one of the most famous prayers in Catholicism: "Out of the Depths, I cried to you O Lord: Lord hear my voice." (<http://www.fisheaters.com/prayers.html#deprofundis>) Whilst the translation of '*profundis*', here, is 'depth', this is not about an experience that is just 'deep' as in 'below surface level'; rather it is more like 'profound' as in "penetrating deeply into subjects or ideas [...] showing or requiring great knowledge or understanding [...] reaching to or stemming from the depths of one's nature..." (Hanks, 1989 p.1222). Wilde's extrapolation, albeit poetically, from his own experience of suffering to thoughts on the problem of suffering in the world is a model for conducting a thought experiment. He plays with the idea of suffering, applying both biblical texts and the "words and works of others" (Kirkham, 2003) to the concept and successfully describes how it is and how others might respond. I find this a helpful way of exploring big ideas and concepts and adopt the practice in some sections of this thesis where metaphor and modelling are deemed to be helpful ways of gaining insight and understanding.

## **Professional learning**

What do I mean by 'professional learning'? In short, the knowledge, skills, understanding, and ability to evaluate critically, learning phenomena that professionals need in order to make progress in their practice and career. In the context of this research, I am limiting the discussion



to teacher's professional learning, though I am conscious that the term covers everything from initial training as teachers, to formal CPD activities as well as the many and various ways in which, informally, they pick up, acquire, 'stumble across', borrow, adapt or adopt practice, knowledge, skills and understanding to aid them in their professional work. I observe teachers using analogies from their own personal lives to exemplify complex issues for children; I hear them citing personal learning experiences as models from which children may learn and I see them committing time, money and effort to engage in a range of structured learning activities. I believe, however, that the practices apply to the learning contexts of all professionals.

### **Supplementary pedagogical co-constructionism**

Set out above is my 'take' on professional learning. Here, I want to drill down into the infrastructure of the term, *learning*, so that my use of it is clearly understood. This is also undertaken to account, in part, for what Phillips and Pugh (1994) term the 'background theory' to the study. I believe that learning is a personal commitment to changing one's being. Once the learner has assented to the process of learning, they then require a framework in which to operate appropriate learning behaviours. In many cases an 'agent' is required to remind the learner of the importance of switching on such dispositions and attitudes. The agent of their learning also provides the framework or, in the sense in which Vygotsky (1978) intended it, a 'scaffold' which supports the building of new, knowledge, skills or understanding. Too often, modern process-oriented learning programmes fail to provide either the scaffold, the building blocks, or the content, to be learned. They may even assume that the act of exhibiting learning behaviours will be enough to cause it to happen. I disagree. I believe, like Grimmer (2000), that the agent of learning supplements the learner's commitment and disposition to learn with expertise, experience or educationally-sound programmes. Together the agent and the learner co-construct knowledge and meaning in a collaborative interaction from which both may take

away new ideas, knowledge, skills or understanding. Thus, when I use the term 'learning', it is representing the phenomenon of supplementary pedagogical co-constructionism and not just a contemporary iteration of child-centred (Plowden, 1967) education or constructivist theory (Vygotsky, 1978). Use of the developed term co-constructionism begins to appear in the writings of Goodson and Mangan (1991, p.11) and is deployed consistently in the later writings of Leask (2010). It is used here, by me, in preference to constructivism in honour of the knowledge-building environments I witnessed in New Zealand (Lewis, 2002 and appendices 1 and 4).

## **Origins**

The origins of this thesis lie in the gradual realisation of what was happening to learning across an extended period of time that extends from the late 1980s to the present day. One of the phenomena of the period has been the rapid evolution of information technologies. These technologies are said to have 'flattened the world' (Freidman, 2006), accelerated the pace of globalisation (see e.g. Ritzer, 1983, Hayes et. al., 2002) enabled and empowered hitherto marginalised, vulnerable and excluded groups and catalysed a revolution in pedagogy/andragogy (see, e.g., Salmon 2000; Thorne, 2004).

To locate this thesis in its historical setting it is convenient to reference the 'falling of the Berlin wall' (Friedman, 2006) in 1989. It was in that year that I took up the post as head of religious education at St. Simon Stock School in Maidstone. Given the re-location of my family, the setting up of a new home, the birth of a second child and the commencement of a new role, the tumultuous events in Berlin and their domino effect across Eastern Europe almost passed me by. The symbolism of those events did not, however, escape me. Here was the demolition of man-

made<sup>2</sup> frontiers, traditional, ideological boundaries and the historical polarities of the 20<sup>th</sup> Century. Since then apartheid has ended in South Africa, Roman Catholics and Protestants share power in Northern Ireland and an African-American with partial Islamic heritage was elected as President of the biggest ‘democracy’ in the world: over twenty years of unprecedented change.

The accompanying technological revolution has seen, for example, the explosion of personal computing in the home, the invention and implementation of the internet and the ‘squashing’ (Jones, 2006) into pocket-sized devices of more ROM (read-only memory) than took ‘men’ to the moon in the 1960s on the Apollo space missions. People can now talk face-to-face with friends, relatives or colleagues on the other side of the world (through online video conferencing, *Apple Face Time*, *Skype*, computer-mediated conferencing and so on). They can share desktops, applications, films, music and ‘chat’ from PCs or mobile devices. They can both publish and read, textually or visually, their own ‘journalism’ (through blogging, vlogging or social-networking) and can organise themselves in protest groups, charitable activities or social enterprises without recourse to traditional media (books, newspapers, radio and television). Much traditional commerce has moved online: travel agencies, estate agencies, even dating agencies have moved online; and new shopping utilities such as amazon.com, ebay.com and e-buyer.com are re-shaping the whole retail experience.

It is against that backdrop that this research came into being. I realised, around 2003, that what fascinated me was the effect all this new technology was having on my professional learning. As indicated above, I mean the knowledge, skills, understanding and ability to evaluate critically learning phenomena which were necessary in the context of my professional life. I realised that whilst I acquired such things in formal learning contexts (in-service education and training

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<sup>2</sup> Women are deliberately excluded from observations about the building of historic artificial frontiers.

(INSET); continuing professional development courses (CPD) and higher level study e.g. my own Masters degree), the things I needed just in time to teach, lead or manage were usually mediated by some technologised means. It was around that time that I also became aware that I had moved from being a classroom teacher of religious education to the person delivering change through Information and Communications Technology (ICT) in the Faculty of Education at Canterbury Christ Church University.

The transition from the two states of being was not planned, intended or caused. It had happened by a series of accidents, though, when a process of critical reflection was applied to them, technology appeared to be implicated in each. It was as if these particular 'moments' were both the cause and effect of change in my professional learning. Now, as I write up this thesis, I realise that they are most appropriately termed critical incidents:

"Critical Incident: Event that stands out in your mind and contributes directly to your development as a practitioner." (after Flanagan, 1954 in Jasper, 2003 p. 13)

As will be seen in chapter 3, I do not adopt critical incident theory or practice wholly, since the thesis is more provisional in its outcomes; rather I prefer to use the term 'illustrative moments'. What started to emerge was the hypothesis that in my life, the coming together of self, epistemology and technology at particular moments caused significant change. On reviewing the literature 'around' this project, it has become clear that there is no single text which rehearses this argument. Nor have I found theoretical constructs which illuminate my lived experience, or an existing conceptual framework which satisfactorily evaluates it as is necessary apparently in critical incident theory. Thus it seemed appropriate to try to use the story of my metamorphosis as a way of both establishing how it had happened and in what ways it might itself be useful in the development of a construct. I wondered, if it were the case that my own

professional learning was shaped by the interlocution of self, epistemology and technology, might it also be the case for other contemporary professional learners.

"... a central commitment to the study of one's own professional practice by the researcher himself or herself, with a view to improving that practice for the benefit of others." (Dadds and Hart, 2001 p. 7)

So I decided to embark on a research programme examining the characteristics of professional learning in the technologised era. Indeed, it has been argued at this moment in the history of humankind, 'Learning [is itself]: the Critical Technology' (Conner et. al, 1996). In the appropriately quirky foreword, Conner writes,

"I believe that successful information organizations must become systematic, even organic. Soon, work will no longer be defined by job descriptions, but rather by growing, changing, and evolving sets of projects, programs and people. What we know and can access quickly will determine our ability to prioritize, focus and do the job. Education will be the soul of the new technology industry." (Conner et.al., 1996)

It is with the benefit of hindsight that the relevance of this quotation to my own story can be seen. The words might now be described as 'partially realized prophecy'. Organisations such as Hibernia College in Ireland ([www.hiberniacollege.net](http://www.hiberniacollege.net)) have become successful and powerful as they embraced the new learning opportunities afforded by technology and grew organically from very small starting points. For a short period, I was happy to share their development. With Dr. Nick Breakwell of Hibernia College, I designed, developed and implemented the *iteach* programme [www.iteach.ac.uk](http://www.iteach.ac.uk)<sup>3</sup>.

My involvement with Hibernia College came about because sometime around 1996, co-terminus with the publication of Conner's work (retrospectively relevant as indicated). I began to see the potential of the internet and computerised networks in learning. Ultimately, the acts of

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<sup>3</sup> The narrative of that programme development ought to be written as it reveals much of the tensions between a new and upwardly mobile, agile and creative 'new' university and its counterpart still shackled by ancient and irrelevant practices and procedures. It is only of tangential relevance to the present thesis and is thus noted but not explored fully.

discovery, exploration and informal experimentation in which I began to engage as a classroom teacher led to my appointment as Director of Learning and Teaching with ICT in the Faculty of Education at CCCU. It was in the lead-up to the appointment to that role that I realized there might be something original and useful in my story that might point to a framework, a construct, a concept or, at least, an interesting phenomenon about which to write. The decision to formalise this enquiry in higher level doctoral study has resulted in the research project which leads to the writing of this thesis.

There are many challenges documented about undertaking a Ph.D. part-time (e.g. Phillips and Pugh, 1994, McNiff, Lomax and Whitehead, 2002), the main one being the necessity of juggling work against research and study. Others have written about the importance of researching one's own professional context and attempting to find ways of illuminating it with theory and *vice versa* (see e.g. Dadds and Hart, 2001, Hopkins, 2002, Lave and Wenger, 2008). Helpfully, I became aware of a useful theoretical model around 2004 that seemed to harmonise both (see West, 2004)<sup>4</sup>. The auto/biographic method encourages researchers to explore their own narratives reflexively in order to excavate from them important messages and meanings which can be carried forward into other aspects of their lives.

"Telling new stories about self, others and a life seems to lie at the heart of exploiting some of the possibilities of our present times and transcending its worst features." (West, 2004 p. 208)

Since I have, in the past<sup>5</sup>, used insights arising from the autobiographic work of others (e.g. St. Augustine, 1995, McDonagh, 1979, Mandela, 1994), it seemed logical to explore this approach for the emerging project. Of specific help was the work of Abbs (1974) who rehearses the value of using autobiography in educational research.

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<sup>4</sup> A full explanation of this methodology is provided in chapter 3 of the thesis

<sup>5</sup> Especially in the context of teaching religious education

“It [education] would seem to take place inside the person [...] it is the individual who knows, who reasons, who asks, who expresses, who seeks, or fails to do so.” (Abbs, 1974 p.3)

This one quotation provides an epistemological context for the work. As will be shown in the methodological chapter of the thesis, the epistemology – or the way of knowing – for this study arises from a reflexive analysis of my own experiences of technology-enabled learning. These reside in my autobiography, the stories and narratives of my professional evolution.

The ‘illustrative moments’ from my autobiography, were selected because they evince a number of consistently-occurring phenomena or factors from which I have attempted to build a framework for professional learning. In that sense this research activity is about ‘tool-making’, insofar as ‘frameworks’ can be seen to be tools for, for example, scaffolding learning (Vygotsky, 1978):

“Man as a tool-maker has established his distinctiveness from the rest of the animal world and with the revolutionary progress of the last century and a half contributed to so changing the world in which he lives that he himself has been changed in ways as yet difficult to assess.” (McDonagh, 1979 p.120)

Several points need to be made about the above quotation. First, McDonagh’s use of the term ‘century and a half’ needs to be interpreted with appropriate chronology. He was writing three quarters of the way through the 20<sup>th</sup> Century and, as such, might be regarded as out of date. His words are, however, prophetic when seen metaphorically. Moreover, his use of the royal ‘he’ is consistent with the discourse out of which he writes. The relevance of the quotation to the thesis lies in the implication of ‘change’ to personhood wrought by humankind’s engagement with technology.

McDonagh also writes,

“From the reaping hook to the laser beam, the tool in the narrow sense of physical instrument has manifested man’s intellectual ingenuity in extending his bodily powers and so utilising his environment more effectively.” (McDonagh, 1979 p. 119)

With hindsight, and the benefits of an extended period of research into my own autobiography, it has become clearer that what has been happening in my life has been an intellectual attempt to extend my bodily (and intellectual) powers to utilise my environment more effectively in that I am trying to make sense of the world I find myself in now. Of note here is the reality that there was no textbook for these studies, no script and no plan at the outset. It was necessary, in retrospect, to superimpose methodological rigour to the systematic enquiry so that meaning and sense are derived from *a posteriori* analysis of the illustrative moments – they are not the outcomes of a planned, sequenced and trialled laboratory experiment. In some senses, then, this is a form of action research. A full explanation as to why the project does not entirely conform to this model is set out in chapter 3. If the work does sit within any specific research tradition at all it is most likely aligned with the ‘Living Theory’ school (e.g. Whitehead and McNiff, 2006) since much of it is theory-building rather than theory-practising.

Where the work is positioned has been a continuous challenge. Bridges (2006) notes:

“The conditions for both the production and validation of research require communities of arguers, enquirers and critics – and a condition for the possibility of such communities of arguers is their sharing in a common language and their shared recognition and reference to some common rules of (in this case) intellectual and creative behaviour.” (Bridges, 2006 p. 265)

Bridges’ work, published in the *Journal of the Philosophy Society of Great Britain*, positions his work in that tradition, discourse and research paradigm. He argues that philosophy of education is one of the ‘foundation disciplines’ of education, alongside sociology, psychology and history (Bridges, 2006 p. 259) and he goes on to argue that multi-disciplinarity, interdisciplinarity and



postdisciplinarity have not necessarily been helpful in securing the validation and rigour of modern educational research (Bridges, 2006 p.261). He makes a powerful case for retaining traditional disciplines. However, and as will be explored in chapter 2, at the time of writing there is no fixed discourse for working in and around educational technology - arguers in this field, constantly draw on sources from literature, science, history, even mathematics and its inevitable use of metaphor to represent perhaps unseen phenomena: hence the relevance of references to Wilde (2012) above.

Many of the metaphors and illustrations I use derive from my knowledge and understanding of and participation in the domains of philosophy, religious studies and education, itself. Whilst acknowledging Bridges' point, therefore, and using it as support for my claim to position aspects of the work within the philosophical tradition, I am aware that there is a reading of the work that could be said to be avowedly multi-disciplinary. In particular, in chapter 3, reference is made to the schemas rehearsed by Jasper (2003) which draw on extensive multi-disciplinary activity. Perhaps it is thus in this noble tradition of 'thinking outside the disciplinary box' that this study finds its appropriate locus; there is unity in the strength of joining things together.

Another part of the challenge for this study has been my 'prior learning'<sup>6</sup>. Psychologically, a person is where they are as a direct outcome of prior learning and prior experiences. My first degree was in theology, a substantial part of which (33%) was in the discipline of the philosophy of religion. My post-graduate certificate in education was acquired at King's College, London, one of the constituent parts of the University of London, which at the time was heavily

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<sup>6</sup> The Early Years Foundation Stage consistently requires practitioners to benchmark children's progress against their 'starting points and capabilities' (Ofsted EYFS Inspection framework, 2009). Schools are expected to take account of children's prior learning. Initial teacher trainees are constantly exhorted to 'recap' at the start of the lesson and to take account of pupils'/students' prior learning and so on.

influenced by the work of R.S. Peters<sup>7</sup>, arguably the doyen of the philosophy of education; even my Masters degree, though far more explicitly practice-oriented, had elements of philosophical method.

As can be seen in chapter 2 of this thesis, there is a distinct theme in philosophy, epistemology, which has been characterised as ‘the science of knowing’ (Leask, 2010). This ‘discipline’ has its origins in ancient systems of thought and human endeavour (for a full exploration of this see chapter 2 on knowledge). In the philosophical tradition, ‘arguers’ account for that which is known as either *a priori*, (in terms of principles or universally occurring phenomena such as mathematical patterns and physical properties) or *a posteriori* phenomena, those which are known as a result of reflections on experiences, events or experiments.

It is the latter type of knowing that seems to position the present research. Structured reflections on experiences leading to significant gains in knowledge, meaning or understanding of the world and the way it is. The work has become an intellectual process around concrete experiences – the illustrative moments that are the research objects for the study – and that positions it in the tradition of epistemological method where philosophers have analysed phenomena and reported on the meanings and significances to be derived from such activity. I learned this methodology from the moral philosopher, Enda McDonagh (1979), whilst wrestling with how to teach ethics to A Level students.

For McDonagh (1979), ‘*Doing the Truth*’ was about identifying those moral issues that touch on an individual’s life – thus, an autobiographic philosophical method. In the discipline of moral philosophy there is the established tradition of ‘emotivism’, often ascribed to G.E. Moore (1903)

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<sup>7</sup> Peters is perhaps best associated with the seminal *Ethics and Education* (Peters, 1974)

but with its roots as far back as David Hume's *An Enquiry Concerning the Principles of Morals* (1751). Frequently referred to as the 'Boo/Hurrah' method, emotivism is a description of discourses in morality which take account of emotional, visceral or non-cognitive responses to issues of right and wrong. McDonagh's book is the story of those moral issues which have been personally significant in his life. It is, in effect, philosophical investigations of those phenomena demanding his urgent attention morally (McDonagh, 1979). I want to argue that this thesis is akin to philosophical investigations on personally-significant moments in my professional life.

Furthermore, the term, 'philosophical investigations', is used here deliberately to contribute to the positioning of the project. As a contemporary of Moore and other important philosophers of the 20<sup>th</sup> Century, Wittgenstein is an influence on the intellectual 'luggage' that is in my prior learning<sup>8</sup>. Arguably his *magnum opus* was *Philosophical Investigations* (Wittgenstein, 1953), an analytical approach to the language used to describe the specificity of human events, experiences and emotions. Later in the 20<sup>th</sup> Century, Karl Rahner paid homage to this work by adapting the title for his own colossal piece of systematic theology, *Theological Investigations* (Rahner, 1976). This was a work that dominated the disciplined study of theology that I undertook as an undergraduate in the early 1980s. Systematic theology is organised around a framework that derives from the Nicene Creed (325 BCE) and looks in turn at doctrinal concepts such as God, Jesus, Faith, 'The Last Things' and so on. Among others, historically significant figures like Aquinas (1225 - 1274), Calvin (1509-1564), Barth (1886-1968) and MacQuarrie (1919-2007) have published works in this form taking into account the contemporary cultural, intellectual and philosophical mindset(s) – in German theological terms the *sitz-im-leben* (literally, 'setting in life').

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<sup>8</sup> It is also important to acknowledge the contribution of A.J. Ayer (see e.g. Ayer, 1972) and a more full explanation of that contribution comes in chapter 2.

The critical point to be made here is that much of my early professional learning was undertaken in the classical tradition, in conventional learning settings and using an epistemological method that was, until the 1980s, systematic and linear. This thesis has caused me to free myself from the shackles of learning in these very traditional ways, useful and all as they were to get me to this point.

Rahner's *Theological Investigations* (1976) captured the *zeitgeist* of the 1960s in an attempt to make Christian Doctrine relevant and reliable for the changing world. The dynamic inter-relationship of doctrinal theory and 20<sup>th</sup> Century experience rendered the work helpful, instructive and influential for a Church trying to make sense of its place in and contribution to that world.

Husserl also adopted the term 'investigations' (see *Logical Investigations* Husserl, 2001).

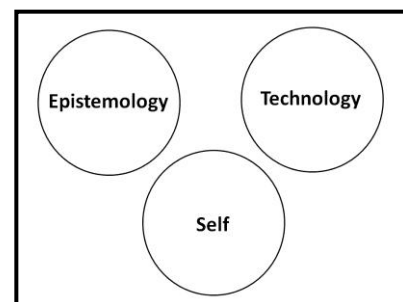
Husserl's approach to knowing, as will be seen, in chapter 3, was influential on the development of phenomenological approaches to research - approaches that contribute to the epistemological bases for this thesis. So, at one point during its development, and as homage to Wittgenstein, Husserl and Rahner, I entitled this thesis *Technological Investigations*. In doing so, I was intending to signal the dynamic process of reflecting philosophically on experiences in which technology seemed to have been influential; a process not dissimilar to Wilde's 'profound' play with the problem of suffering set out earlier. As will be seen in chapter 3, the philosophical reflections are shaped by the phenomenological approach (Natanson, 1970, Sokolowski, 2000, Moustakas, 1994) to some qualitative studies and also the reflexive auto/biographical method advocated by West et. al. (2004, 2006). It is, as stated previously, an attempt to understand the factors present in some professional learning episodes from my career where technology was both the agent and the medium and which might be illustrative for others in theirs:

“Who doesn’t spend time trying to make sense of information that may not be important? Why continue to rework old models when they don’t help us improve results? Why not accept that many of our current strategies don’t work and instead evolve?” (Conner et. al. 1996)

In order to prepare for the research phase of the project, I embarked on a guided review of literature that seemed potentially relevant. A report on the outcomes of that is the substance of chapter 2. From the outset, I was reading widely about technology which is unsurprising given the professional context in which I was then working. It was also necessary to re-visit readings on epistemology and to add value to that which had become over twenty years out of date. Since learning leads to knowing, I spent some time reviewing literature about learning in the context of teacher's professional development.

Since there was clearly an emerging theme in and around autobiography, it seemed appropriate to visit texts that focused narrowly on studies of the ‘self’. Whilst working towards the submission of this thesis I was still reading around technology, for the purposes of the study, and, out of interest and in response to new learning needs thrown up by constantly changing workplace scenarios. Insights arising from those reading activities have been edited down into section 2.3.

So, chapter 2 comprises three sub-sections on epistemology - knowledge -, the ‘self’ and technology. Represented graphically the domains might look like this:



**Figure 1: The Domains**

Chapter 3 sets out the epistemological framework for the study and the ensuing research methodology. It seems necessary to be explicit about how I have come to know what I claim to know and to show how the selected research methodology supports these claims.

Chapter 4 contains the formal reflections on the illustrative moments, approaching them in a number of ways in order to 'wring' from them as much meaning, significance and theory as possible. For ease of reading, the first written up versions of the IMs are presented as appendices (2-6), such that it would be possible to 'toggle' backwards and forwards between them and my reflections on them. Towards the end of this chapter, I begin to theorise from the reflections and my analysis before drawing my findings together.

Conclusions from the research are set out in chapter 5, wherein I also indicate how I believe the thesis makes an original contribution to the domain of teachers' professional learning.

## Chapter 2: Underpinning literature

The purpose of this chapter is to set out the underpinning literature that supports the thesis. It is arranged in three parts:

- A discussion about why I began to review literature around three domains: epistemology, self and technology
- Essays on each of those topics which summarise the literary foundations of the project
- An addendum to the original literature review which focuses on the existing body of knowledge about professional learning.

The inclusion of the addendum is the direct result of the reflexive processes for the study which in early 2010 caused me to recognise that it was necessary to focus on professional learning as opposed to learning in general and children's learning in particular. It will also help to justify the positioning of this thesis in that particular domain.

This piece of writing has enabled me to:

- 1) explore the place of literature in the development of my ontology (Whitehead and McNiff, 2006), a critical task if the outcomes of the research are to be considered objective and reliable;
- 2) explore the place of literature in my autobiography and the influence this has had on my epistemological standpoint. As will be seen, that tends to be more philosophical than practice-oriented. This has been a challenge given the choice of positioning the work as a doctoral thesis in education as opposed to a Doctorate in the Philosophy of Education;

- 3) chart the direction of travel - It demonstrates the development of my approach to professional learning over time, which moved from a structured, and probably 'structured', theological method to a more open, dynamic, dialogic method in keeping with the spiralling and iterative nature of learning mediated by technology. One might say, 'journeying into theory';
- 4) provide the literary foundations for the theoretical conceptual framework on which the work is predicated and to tee it up.



## **Rationale for selecting Epistemology, Self and Technology**

The three 'foundational' domains were chosen because I was aware that (information) technology was having an impact on my career. This was, I realised, affecting me as a self and I was keen to know in what ways that might be the case. It became important, therefore, to re-visit the theoretical explanations as to why I know what I have come to know and even some of the processes by which this has happened.

There is some 'fuzziness' (Reid, 2008) with regard to interchanging the words 'epistemology' and 'knowledge'. Epistemology, according to Hanks (1989) is a noun, "the theory of knowledge." (Hanks, 1989 p. 514). I want to argue that my review of the literature shows that there are multiple theories of knowledge so I prefer to see epistemology as the study of knowledge in much the same way as theology is the study of *theos* - God. Quinton describes epistemology as, "the philosophical theory of knowledge, which seeks to define it, distinguish its principal varieties, identify its sources, and establish its limits" (Quinton, 2000 p.279). In this thesis, therefore, I am keen to show the principal varieties of my knowledge, show their sources and establish their limits. The first section is designed to set out how I believe I know things. The second sets out how I act as a self, though in this case I intend to limit this discussion to my professional self as an educator. In the third part of the chapter I want to explore very specifically how emerging and evolving technology has been influential on the development of my professional knowledge, skills, identity and, ultimately, career.

## ***Section 2.1: Relevant Literature About Knowledge (Epistemology)***

"True knowledge is existential knowledge. The act of autobiography, above all, reveals to the student the truth of this proposition, and in so doing, prepares him to become a responsible and responsive teacher." (Abbs, 1972 p.6)

The purpose of this section is to set out as clearly as possible the sources and influences on my use in this thesis of the term 'knowledge'. As will be shown later in the thesis (section 2.2x), kNowledge (N<sub>2</sub>), as I understand it, is a significant factor in the theoretical framework which the study is exploring.

What lies at the heart of my inquiry is the question "How do I know what I know?" and the subsidiary question, "If there is something that I don't know, how do I set about trying to find it out?" Throughout the thesis, I take time to point out the moments when what I was learning *in transit* changed the way the study was developing and the epistemological processes through which it was travelling. Though challenging to traditional research methodology, it is this specific organic, dynamic, living theoretical process that makes this thesis unique and, arguably, original.

Within the context of the study, what I am talking about here contributes directly to that aspect of the framework that I characterise later as N<sub>2</sub> - kNowledge. It is a mixture of prior knowledge that is, that which I have acquired in formal or informal learning contexts in the past and knowledge that has been set down by others as an outcome of their own research and learning: in the words of Glynn Kirkham (2003), "The words and works of others."

It is not the purpose of this study to exegise the words of Donald Rumsfeld (US Secretary of State during the second Gulf War) though they are worth repeating here by way of illustration:

"As we know,  
There are known knowns.  
There are things we know we know.  
We also know  
There are known unknowns.  
That is to say  
We know there are some things  
We do not know.  
But there are also unknown unknowns,  
The ones we don't know  
We don't know."  
(Rumsfeld, 2002)

While the statement might be risible given the enormity of the context about which it was uttered, it is a neat summary of the important challenges facing any enquirer at the start of their learning journey.

In the formative stage of this process I read widely in the field of epistemology to find a solution to the question, "...how do we know what we know" and, indeed, how do we start to find out what we don't know? (see Rumsfeld, 2002 above) That work indicated that some philosophers in the Western tradition (e.g. Plato, 2004, Ayer, 1972) see knowledge as existing in an abstract sense and ascribe to phenomena the definition *a priori*. Take for example this extract from the dialogue reported between Socrates and another of his disciples, Glaucon:

"And is there anything more akin to wisdom than truth?  
How can there be?  
Can the same nature be a lover of wisdom and a lover of falsehood?  
Never.  
The true lover of learning then must from his earliest youth, as far as in him lies, desire all truth?" (Plato, 2004, Book VI)

Here the term, 'wisdom', is used interchangeably with the term, 'knowledge', and was, for Socrates, 'owned' by philosophers. The older the philosopher, the wiser he was since he had had more time to accumulate wisdom. This conceptualisation of knowledge as *a priori* data, can be described as the precursor to deontological approaches to knowledge, i.e. those 'facts' that exist because they exist and are known empirically.

This tends also to be the case in Eastern traditions where thinkers or 'arguers' such as the Buddha or Kung-Fu Tzu taught about the ideal forms of things and that the mission of the human was to aspire to know or understand these physically and metaphysically occurring phenomena.

"O *Kāśyapa*, there are four [means] to attain the great treasure of the bodhisattvas. Which four? He rejoices at the presence of the Buddha; he hears the six perfections (*pāramitā*)..." (from the *Kāśyapaparivarta Sūtra* c. 5th Century C.E. cited in Holm & Bowker, 1994)

Here the key to enlightenment is meditation and the control of passions (bodily cravings) as a means of liberating the soul.

Other philosophers in the Western traditions (e.g. Aristotle, 2000; Polanyi, 1962; Ryle, 2009) tend to see knowledge as the outcome of a human's participative engagement with real world phenomena. In essence, what is known is that which has been learned from reflections on experience – that is, knowledge or understanding accumulated after the event or *a posteriori*.

"Recognition of a truth may in some cases contain as factors both previous knowledge and also knowledge acquired simultaneously with that recognition-knowledge, this latter, of the particulars actually falling under the universal and therein already virtually known." (Aristotle, 2000 p. 1)

The challenge for me as a learner was to establish my own approach to knowledge given the fine distinctions that are necessary when examining some phenomena. For example, the existence of mathematical patterns or forms in the world indicates an order and logic that some have called 'pure fact' (e.g. Plato, 2004 and Ayer, 1972). However, those who believe that knowledge is

acquired inductively will argue that even Plato and Ayer required sensory phenomena to act as triggers for their 'rational' approach to knowledge and understanding.

I am inclined now to argue that, on balance, the inductive approach seems to me to be more tenable and realistic in a constantly-evolving and changing world, so that I therefore approach the acquisition of knowledge in a tradition that has come to view it as the outcome of reflections on experience. To do other would be to perpetuate some of the ancient dualisms (see Ryle, 2009) that separated body from soul, mind from spirit and heaven from earth back before scientific enquiry enabled humankind to understand the holism of creation (that is, the world as experienced by human beings) and the integral part played by 'us' in the evolution of the biosphere. I am indebted to writers like Matthew Fox (see e.g. Fox, 1982) and James Lovelock (see e.g. Lovelock, 2009) for insights on this carried forward from previous parts of my career:

"Science itself has broken down in our century [Fox wrote this in the 20th Century] and is going through a profound breakthrough, a fashioning of a new paradigm by which to model the universe. This new paradigm is sure to affect all elements of society - from education to medicine, from religion to economics, from politics to psychology - just as the previous Newtonian model has done for three centuries." (Fox, 1982 p. 15)

In the introduction I noted the impact that technology has had on relatively recent history.

Authors such as Friedman (2006), Kuhn (1962) and Waldrop (1992), who have been influential on this study as a whole, have shown this impact by rehearsing hypotheses about new paradigms of knowledge and the science that underpins them.

"Very, very slowly, there's been a gradual shift from an exploitative view of nature - man versus nature - to an approach that stresses the mutual accommodation of man and nature. What has happened is that we're beginning to lose our innocence, or naiveté, about how the world works. As we begin to understand complex systems, we begin to understand that we're part of an ever-changing, interlocking, nonlinear, kaleidoscopic world." (Waldrop, 1992 p. 333)

I grew up being taught that science was the means by which we knew about and understood the world. During my time as a student of theology, I learned, that the origins of the word 'science'

are in the Latin word *scientia*, which translated simply means knowledge<sup>9</sup>. Thus, I hold that this is a scientific enquiry even though it has no test tubes, thermometers or triangles. It is a study, however, that is trying to establish what knowledge is and how it is acquired.

Most notable for the purposes of the project is the seminal work of Michael Polanyi (1962) who shifted publicly from his role as an academic scientist to work as an epistemologist precisely because he saw the tensions between reified knowledge as he saw it in the physical sciences and his own experience, the outcomes of which he saw as rather less fixed and open to change and difference. Polanyi writes,

"... scientific theory is denied all persuasive power that is intrinsic to itself, as theory. It must not go beyond experience by affirming anything that cannot be tested by experience, and above all, scientists must be prepared immediately to drop a theory the moment an observation turns up which conflicts with it. In so far as a theory cannot be tested by experience - or appears not capable of being tested - it ought to be revised so that its predictions are restricted to observable magnitudes." (Polanyi, 1962 p. 9)

Polanyi offers here a critique of the Newtonian paradigm alluded to above in the words of Matthew Fox. He goes on to note alternatively that,

"We shall find Personal Knowledge manifested in the appreciation of probability and of order in the exact sciences, and see it at work even more extensively in the way descriptive sciences rely on skills and connoisseurship. At all these points the act of knowing includes an appraisal; and this personal co-efficient, which shapes all factual knowledge, bridges in doing so the disjunction between subjectivity and objectivity. It implies the claim that man can transcend his own subjectivity by striving passionately to fulfil his personal obligations to universal standards." (Polanyi, 1962 p. 17)

Accordingly, I would argue that kNowledge (N<sub>2</sub>) for me is the outcome of an appraisal of a range of experiences. It is not, in Polanyi's theory, enough to have participated in an experience event; there has to be a process by which the putative knower appraises what has been seen, heard, touched, tasted or smelt. As such all matter are therefore phenomena to be experienced first and then 'come to be known' later. I may experience, for example, video-conferencing in a

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<sup>9</sup> See Hanks 1989

lecture hall with an expert operator manipulating the technology to desirable effect. It will only be after I have attempted to engage with such technology that I can say that I know fully what it is, or how it works. I have seen many people using technology and concluding on first engagement that 'it doesn't work' - they have not transcended their own subjectivity. It seems to me that those who can see past the 'technical hitches' are those who can both deduce from universal standards and create their own.

The key difference, therefore, between personal knowledge and 'personal knowledge' as proposed by Polanyi (1962, *ibid*) is that the knower has appraised phenomena objectively. Were I to substitute the word 'appraised' with 'reflected upon', it begins to draw this argument closer to the discourse of teachers' professional development (see e.g. Schön, 1985; Jasper, 2003). A significant part of the research methodology for this study is a systematic series of reflections on some phenomena from my own autobiography (see chapter 3 for a discussion of the methodology and chapter 4 for the reflections themselves).

Autobiographically, a text that has been influential on my thinking since the 1980s is *A Theology of Liberation* (Gutierrez, 1971). The epistemic method therein is known as the 'hermeneutic circle'. Gutierrez writes,

"In the last analysis, the true interpretation of the meaning revealed by theology is achieved only in historical praxis" (Gutierrez, 1971 p.13)

I want to adopt this hermeneutic circle and apply it to my epistemic method because I believe that I come to know things best when I act on the theories I have accumulated as I journey through the world and time.

One of the causes of paradigm shifts in science (and therefore *scientia*), has been the rapid expansion of technology (Friedman, 2006, Waldrop, 1992, Naughton, 2000). Again, in my

childhood and adolescence science and technology were 'disciplines' studied by those wishing to be doctors, engineers, mechanics or 'artisans'. I was 'encouraged' rather to pursue the arts, humanities and languages and, as a result, learned little in physics and chemistry that is memorable, or useful. Today, such a binary approach would not be helpful as it is in the coming together of the disciplines that real advances in knowledge and understanding seem to be made.

The Santa Fe Institute, as described by Waldrop, exemplifies this point admirably:

"Basically, what I'm saying is not at all new to Eastern philosophy. It's never seen the world as anything else but a complex system. But it's a world view that, decade by decade, is becoming more important in the West - both in science and in culture at large."  
(Waldrop, 1992 p. 333)

Even before I had encountered, what might on the face of it be described as a hard-nosed, (computer) scientific theory like 'Complexity', I had also read the seminal insights of Pierre Teilhard de Chardin (1960), the creation-centred insights of Fox (1982) and a significant amount of popular science (e.g. Lovelock, 2009). Each of these, in their own ways was leading me to an understanding of the world that was not able to isolate scientific world-views from spiritual ones.

"The arrangement of the parts of the universe has always been a source of amazement to men. But this disposition proves itself more and more astonishing as, every day, our science is able to make a more precise and penetrating study of the facts. The farther and more deeply we penetrate into matter, by means of increasingly powerful methods, the more we are confounded by the interdependence of its parts." (Teilhard, 1960 p. 44)

Elsewhere in this study, I have embraced Naughton's (2000) description of autobiographic moments as 'magic' or 'miracle', metaphorical language which locates the discourse right on the edges of hard-nosed scientism and philosophy and theology. There is, of course, nothing metaphysical about the insights afforded to the human condition in the 21st Century by computer-aided technology, though sometimes the outputs provoke a reaction similar to that described as 'awe and wonder' in the DFES Circular 1/94 (DFES, 1994). What is actually



occurring in these moments is a shift in what the observer perceives to be possible now, with the assistance of technology. Without formally having studied computer science, I can see that its power is awe-inspiring when applied carefully in the pursuit of human understanding. In education, as I have experienced it over twenty years, the outcomes and outputs of research and development in computer-based technologies have been instrumental in shaping the future of possibilities for learning.

Technology, in professional learning, is likewise causing constant changes in our understanding as a human community. In the domain of formal learning such is the pace of change that, “content can’t be pre-specified.” (Conner et.al., 1996 p. 30). In that sense, it becomes important to induct patterns, theories or propositions that might be the case in the present or future, confident that the only thing likely to remain unchanged is the need to change – again and again. A short autobiographical illustration is given in the vignette below to illustrate the point that the more we worked with technology and our knowledge base increased, so did our capacity for recognising better tools when we saw them and our ability to amend, adjust or develop them or others to our purposes. It is also referred to in appendix 3.

### **Vignette 1: The *Dataease* Debacle**

A frequent challenge for teachers is the annual need to report on the progress of their pupils. At some point in the early 90s, St Simon Stock School attempted to develop its own database driven system to simplify the process and to reduce the number of repetitive tasks teachers were required to perform. Working with Simon Stanford (see IM1 - appendix 2), I set about writing a definitive set of reports using a state of the art program *Dataease*<sup>10</sup>. Engaging with this new technology was another chance to play in the metaphorical 'sweetshop' of technology<sup>11</sup>. The system was used once! It was abandoned in favour of another system that came 'plugged in' to the ever-emerging SIMS product that was gaining ubiquitous adoption across the education market-place at the time.

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<sup>10</sup> This product is still owned and developed in the UK having been bought by Sapphire International.

<sup>11</sup> Further analysis of this metaphorical term is undertaken in section 4.4

As can be seen in IM3 (see appendices 1 and 4), help towards understanding of this phenomenon came from engagement with the work of Polsani (See 2002 1 and 2). His work as a philosopher attracted me to his session at ICCE 2002 at which he read from the paper that contains these words:

"More adequate categorization would be to call software a collection of symbolic arguments. Unlike traditional tools, the symbolic assemblages (software) are applied to production of other symbolic groupings. Therefore, the knowledge production in the Information Sphere is the application of knowledge for further knowledge." (Polsani, 2002, 1 p.2)

Elsewhere, Polsani (2002, 2) articulates in greater detail the correlation between this and what he calls 'performative knowledge' - a term he adopts from Jean-Francois Lyotard (1984),

"With preparedness for change as a fundamental principle, performative knowledge can be grouped into two categories, functional knowledge and optimal knowledge. Functional knowledge is the ability to access correct information in the right way at the right moment to perform tasks. Optimal knowledge on the other hand is the capacity to arrange previously independent data into a new series of arrangements to generate new projects or optimize the existing projects." (Polsani 2002, 2 p 3)

If I synthesise the insights derived from Polanyi (1962), Gutierrez (1971) Lyotard (1984) and Polsani (2002, 2), I arrive at a point where knowledge seems to be acquired by an individual who wishes to know and understand more about their engagement and interaction with the world and does so by total immersion and participation. On this basis, I would argue that there are three dominant strands in my thinking about epistemology, all of which are supported in the words and works of those cited after each bullet point:

1. Knowledge formed as a result of participation in conscious acts of learning (post Aristotle (2000), Polanyi (1962), Glaser (2002), Conner et. al. (1996), Lave and Wenger (2008))

2. Knowledge accumulated by professionals as an outcome of their reflective practice and participative inquiry, including the critical feedback of pedagogical agents (Schön (1983; 1987), Dadds and Hart (2001), Whitehead and McNiff (2006))
3. Knowledge acquired about self through reflexive processes, especially, again, where this is accompanied by feedback from professional agents (West (2004), Reid (2008), Husserl (2001), Natanson (1971), Sokolowski (2000))

The first is extrapolated further in section 2.3 where the notion of pedagogical/andragogical agency is explored since most 'conscious acts of learning' will occur in a formal education setting and will be more or less conducted by a learned expert or guide. Significantly, this tees up the question of whether or not a 'self' can act as her or his own pedagogical agent.

The second might be said to be a statement of the present state of epistemological practice within the teaching profession.

The third serves to act as a lead in to a summary account of literature reviewed about the 'self'.

## ***Section 2.2 Relevant Literature About Self***

Reading in philosophy pointed the way to further exploration of the concept of ‘self’, since it is identified as one of the four core concepts in post-modernism (see Taylor, 1984) and is evoked by writers such as Lyotard (1984). I dwelt on reading around this topic, since the self, and specifically myself, forms a significant ‘object’ for the research that underpins the thesis. Of note have been the works of Natanson (1970), The Buddha (1985), Freud (see Blum, 2003; Thornton, 2006; Chiriac, 2006), Jung (1978) Taylor (1989), and West (2004). These disparate ‘sources of the self’ (Taylor 1989) were brought together in my reading of Sokolowski (2000) who gave me an insight into how ‘self’ can be both subject and object within phenomenology and is thus a legitimate focus for structured enquiry.

Further work has been undertaken in the exploration of ‘selves’ as presented in social-networking sites such as [www.bebo.com](http://www.bebo.com), [www.facebook.com](http://www.facebook.com), [www.myspace.com](http://www.myspace.com), and [www.secondlife.com](http://www.secondlife.com). This material is difficult to reference but I have included in section 2.3 a short review of the emerging literature around ‘virtual’ and online identities in education and how they are being used to co-construct new knowledge and meaning. This is an important example of where technology and self overlap and interlock. Much research has been carried out into the identities teachers develop in their professional lives (Day et. al., 2006; Day et. al., 2007) which is an important background consideration for this study. Of greater interest is the selfhood and perceptions of self as a journeying learner that sits behind the public identity that is foregrounded in a career.

I will also aim to deal with the fact that I now see the inclusion of the word ‘virtual’ in the pre-study documentation as inappropriate since the identity teachers create are real to them

(Goodson and Mangan, 1991) whether they are disclosed in online, technologised, digital, blended or face-to-face professional learning settings (see Day et.al., 2006 and Day et. al., 2007).

Natanson proposes that in order to make sense of complex ideas which transcend a variety of academic disciplines, it is necessary to move from ‘mundanity’ to a ‘philosophical attitude’ (Natanson, 1970 pp. 15-17). He argues, “The individual who does philosophize in serious terms is the one who breaks through mundanity to the paradoxical recognition that radical reflection is one of the possibilities of the mundane world” (Natanson, 1970 p.16). This approach is echoed by Sokolowski (2000), who argues, “when we move into the phenomenological attitude we become something like detached observers of the passing issue or like spectators at a game.” (Sokolowski, 2000 p. 48). This, however, both affirms Natanson’s approach but also begins a divergence from it. Natanson noted that the philosopher’s “...materials are inseparable from his own existence, he is his own subject matter” (Natanson, 1970 p. 16).

“Let us call the historicized ego, the self. It is the ego<sup>12</sup> which has a concrete biography, a continuous experience and a specific orientation toward the future in terms of projects and dispositions” (Natanson 1970 p. 16)

Whereas Sokolowski clearly sees operating within the ‘phenomenological attitude’ as more akin to the analysis of observable phenomena,

“The world is more like a context, a setting, a background, or a horizon for all the things there are, all the things that can be intended and given to us; the world is not another thing competing with them, it is the whole for them all, not the sum of them all...” (Sokolowski 2000 p.43).

There is, thus, even within the apparently unified phenomenological approach, a bifurcation between those who see the self as the main *object* of philosophical enquiry and those who see it as the principal *subject*. In order to make sense of this, my aim is to rehearse some ancient

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<sup>12</sup> It is important to note that Natanson is operating in the post-Freudian era and that attention is paid to Freud’s work later in this section.

wisdom on the 'self' in a quite mundane manner, to move from there into the 'philosophical attitude' – Natanson's concept attenuated by Sokolowski into the 'phenomenological attitude' - so that a more detailed analysis can be undertaken and then to present some conclusions which will inform and enrich further sections of this study.

It is my intention to see myself as both the subject and object of the research, adopting a phenomenological attitude whereby I 'bracket out' those things that can be construed as 'noise' in order to get greater clarity on those moments that have been illustrative. But I also want to acknowledge that it would be impossible to bracket myself out of the moments as a 'nod' to objectivity, since, as will be seen in section 3.1.2, Moustakas (1994), a leading practitioner of phenomenological research methods, affirms the contribution of the researcher's self to the process. In undertaking this review of literature about the self, I am therefore intending to understand more about the self, myself, that will conduct the research.

### 2.2.1 Historico-philosophical approaches to the 'Self'

The self is an entity. It is also a concept and probably a psychological reality. The notion of the self is one that emerged in the writing of the ancient Greeks including Plato and Aristotle. In Plato's work there appears to be inter-changeability between the terms spirit, soul and self (see Thomas, 1998). For Aristotle, the focus is much more on how an individual 'self' responds to its duties within a nation state and to the moral imperatives of citizenry (Ross, 1997). There is certainly plenty of evidence, therefore, that in the ancient Greek world the relationship of the self to the political world was an important matter of philosophical debate.

The 'self' is both the subject and object of some significant figures in Western thought. Augustine, in his *Confessions* (see Outler, 1995), wrote of the impact of the self on morality and the dynamic interplay between the moral self and the public self. Fundamentally, however, he abrogates responsibility for his actions to a greater power – God:

"And what is there in me that could be hidden from thee, Lord, to whose eyes the abysses of man's conscience are naked, even if I were unwilling to confess it to thee? In doing so I would only hide thee from myself, not myself from thee. But now that my groaning is witness to the fact that I am dissatisfied with myself, thou shinest forth and satisfiest. Thou art beloved and desired; so that I blush for myself, and renounce myself and choose thee, for I can neither please thee nor myself except in thee." (Augustine *Confessions* Bk 10 Ch. 2)

St. John of the Cross acknowledged the struggle of the self in its quest for truth in *The Dark Night of the Soul* (Whiston, 2000) and picks up Augustine's theme of temptation, pointing to those things which can de-rail a self from that quest:

"Herein it extols the great happiness which it found in journeying to God through this night with such signal success that none of the three enemies, which are world, devil and flesh (who are they that ever impede this road), could hinder it; inasmuch as the aforementioned night of purgative [20] contemplation lulled to sleep and mortified, in the house of its sensuality, all the passions and desires with respect to their mischievous desires and motions." (St. John of Cross, *Dark Night of the Soul Book I*)

Ignatius Loyola commended Spiritual Exercises as a way to joining the soul to the divine (<http://www.ccel.org/ccel/ignatius/exercises.html>). Aquinas located the self within a broad cosmology, which enabled personkind to see its place in relation to the vegetative, animative and spiritual domains

(see. <http://www.ccel.org/ccel/aquinas/summa.i.html?highlight=thomas.aquinas#highlight>).

Undergirding each of these Christian philosophies is an unreconstructed rehearsal of platonic notions of the self as a pre-existent formless entity which comes to earth at birth, ‘mingles with the flesh’, becomes human for its lifetime and then departs the body at death, returning to the spiritual realm. MacQuarrie, attempting to explicate this for an existentialist audience, says,

“How then is this structure of the self constituted? We may begin by recalling that in Greek philosophy there were various theories about the self or soul, and that Plato and Aristotle present us with an interesting contrast. Plato may be taken as an exponent of the “substantial” soul. On this view, the soul is regarded as capable of existing apart from the body. [...] Aristotle, on the other hand, thinks of the soul as the “form” of the body, and as continuing to exist after the dissolution of the body.” (MacQuarrie, 1977 p. 74)

Subduing the body, by the will of the soul/spirit/self is, for many of the aforementioned ‘doctors of the Church’, the moral purpose of a lifetime. It is, however a counter-intuitive pastime and, paradoxically, incompatible with the Christian doctrine that to separate mind from body is dualistic and thus heretical.

More recently, theologians have seen the importance of an understanding of the self as the starting point for liberative actions in the quest for freedom (e.g., Moltmann, 1967; Gutierrez, 1970; Boff, 1981; Metz, 1981). Each self, as referenced in the works of these authors, is a being situated in a real context at a real time, suffering politically or physically, disenfranchised, marginalised and in need of liberation. However, each self, in collaboration with others has the



potentiality to change the circumstances of their life by a structured process of reflection that involves education and always leads to action. Hence Gutierrez advanced the primacy of *orthopraxy* over orthodoxy in Christian living (Gutierrez, 1971). This concept will be at the heart of later reflections in this study. Such people were the architects of pastoral theology(ies) and owe much to the, then, contemporary hermeneutics (e.g. Gramsci, 1971; Lyotard, 1984), post-structuralist approaches to knowledge and post-marxist critical analyses. The bridge between their work and educational discourse is Paolo Freire (1972). Hermeneutic approaches always require the individual to establish a dialogue between themselves and their context where they can be both influenced and influencer simultaneously.

Taylor (1984) would argue that the self, from a post-modern perspective, is a constantly shifting entity which impacts on and is reciprocally impacted by the experiences through which it passes. Thus experiences of childbirth, schooling, partnership, business, parenting and death contribute to making the self what it is.

In the professions, Donald Schön commends all practitioners to examine the impact on themselves of work-related learning and professional development (e.g. Schön, 1987), and I am constantly reminded of tutorials with new members of staff or students learning to teach that invited them to consider the impact of teaching events on their self... “What did you learn from this experience...?” As I see it, there is no such thing as a fully-autonomous human being – Indeed John Dunne’s (1572-1631) notion of no man being an island is probably right (Dunne, 2007). We are who we are because of the behaviours and genes of our parents (Freud, 1923; Dawkins, 2006,) the influences of teachers (Woodhead, 2001; Dadds and Hart, 2001), the pressure of our peers (Biddulph, 1995), the outcomes of our learning (TDA, 2007), the context in which we find ourselves (West and Carlsson, 2007) and the values system we develop and

grow (Natanson, 1970). The self is subject to both nature and nurture therefore (Atkinson and Claxton, 2000). It is not my view that we are hard-wired psychologically and through evolutionary means into one particular way of being. Newman encapsulates the challenge in the following synthesis: “To live is to change, and to be perfect is to have changed often.” (Newman, 2007)

### 2.2.2 Buddhist approaches to the ‘Self’

The decision to separate an analysis of Buddhist ‘writing’ on the self from other spiritual approaches (see below) is a conscious decision. It is based on the understanding that Buddhism is a philosophy, not a spirituality and also that its philosophical underpinnings are all derived from Siddhata Gautama’s insight that *his* self, was his own vehicle to enlightenment. “One truly is the protector of oneself, who else could the protector be? With oneself fully controlled, one gains a mastery that is hard to gain.” (Buddharakkita 1985). This is quite different, say, to Augustine’s approach which was theological and dependent as seen above.

By way of illustration, the following piece of reflexivity is offered.

#### Vignette 2: Buddhism and Change

I was taken aback at the end of one PGCE year when posing the evaluation question to the students, “What have you learned this year which has changed you...?” One boldly replied, “...nothing, I haven’t changed at all.” It was not my intention to let the silence speak for itself, I was just surprised. The silence was broken by one of the others, a practising Buddhist, who replied that everything in life causes us to change<sup>13</sup>. No-one, he argued, could have been through the experience of PGCE without having changed.

Selves then are changed and affected by the circumstances in which they find themselves. This is remarkably similar to the phenomenological approach which accounts for the ‘intentionality’ of events and their impact on selves and *vice versa*. As Sokolowski says, “phenomenology is the study of human experience and the way things present themselves to us in and through such experience.” (Sokolowski 2000 p.2)

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<sup>13</sup> See, for example, Carrithers (1996)

For Buddhists, the search for enlightenment begins with a rigorous analysis of the self which includes the adoption of ascetic modes of being, subjection of the mind to deep immersion in reading and the adoption of contemplative practices aimed at knowing the self better. A standard critique of Buddhism is that its practices can become self-indulgent, disengaged from reality and thus, potentially solipsistic or even narcissistic. This critique will become a frame for assessing my own assertions about the self and how it develops in professional learning settings.

### 2.2.3 Scientific approaches to the ‘Self’

Returning briefly to Plato and Aristotle, it is possible to say that however ineffable, intangible or immeasurable the self is, there is indubitable evidence that zoologically selves exist. Dawkins, pre-eminent among popular natural scientists, advances empirical and quantitative evidence of the physical presence of selves (Dawkins, 1978 or Dawkins, 2006). For him there is no virtual reality, there is only organic matter. The self is thus a collection of tissues, formed from genetically-controlled reactions, and ‘bonded’ together in a chemically-organised manner which seems to have something to do with the functions it needs for the survival and perpetuation of its own genetic identity (Dawkins, 1978 p. 7). In the post-Darwinian discourse in which Dawkins’ work is situated this is unproblematic. Outside that paradigm, there remain debates about the verifiability of his theses and the reliability of the science on which they are predicated (McGrath, 2007).

More helpfully, from within the neuro-scientific community, Damasio writes eloquently about the neurobiology of feelings (Damasio, 2004 p. 101). In so doing, he points to the anatomy of those things, ‘hard’ science has often found it difficult to explain, things like beauty, altruism and love. Based on a number of ‘scientific experiments’ conducted within laboratory settings he reports the physiological modifications that occur when a self is experiencing feelings, which he argues are the precursor to emotions. Of particular interest to this study is Damasio’s conclusion that, “an entity capable of feeling must be an organism that not only has a body but also means to represent that body inside itself” (Damasio, 2004 p.109). Contributing to the modifications described above are hormones, chemicals, electrical impulses and secretions all of which are connected to the personal interior landscape of the self being affected by external stimuli. This research would appear to validate *in absentia*, therefore, the belief systems of many, apparently ‘quack’, alternative therapies like acupuncture, the manipulation of *chakras* and *reiki* that

‘operate’ on parts of the anatomy, and which ancient wisdom(s) suggests ‘affect’ healing in other parts of the body. It is important to park the notion of *absence* for the moment because its significance for this study renders treatment crucial, but more appropriate, later on.

So far consideration has been given to the anatomy (Quine in Warburton, 1999) and genetic make-up of selves (Dawkins, 1978) as well as the physiology and neurobiology of emotions and feelings (Damasio, 2004; see also the recent insights of Prof Mukandun, 2008) . Further insights are available from the field of psychological enquiry. Psychologically, the self is an individual who possesses emotional, social, relational and cultural needs. This self exhibits behaviours which reflect the satisfaction or otherwise of those needs. Maslow arranged these into a hierarchy of the prepotency of needs which, when realised, would lead to what he called self-actualisation (Maslow 1970). Goleman reports the workings of the amygdala, the small part of the brain which controls the ‘fight or flight’ instinct that generates a reflex response to danger and thus protects organisms from imminent harm (Goleman 1996 p.5). Damasio presents a range of data, including the results of MRI scans, to show activity of the amygdala when in response to stimuli (Damasio, 2004).

These research-informed insights resonate with Freud’s (1856-1939) attribution of certain behavioural phenomena to the *id*, that part of the self which, in evolutionary terms, goes back to our reptilian ancestry and which, up to a point, explains certain primeval, instinctual reactions. His own psychoanalytic work led him to deduce that there was/is a part of the self that operates psychologically on a plane above this. The *ego*, as he called it, controls normative human and behavioural interactions and might more easily be identified with the emotions as opposed to instincts. It is the *ego* that controls the *id*. Only when a self is acting in control of their

reactions, or paying homage to shared external values would Freud have attributed such behaviour to the third of his categories – *the super ego* (Freud, 1923).

As a neurologist, Freud's training would have been medical and thus positivist in paradigm. What caused him to re-think his work were the many disintegrated selves he met in his clinic, selves seeking healing for their dis-eased (my hyphen) minds and his own self-analysis (See Chiriac, 2007). The cases he treated and studied presented patterns of behaviour and concern that constituted a sufficient critical mass for him to extrapolate from their individual illness to broader patterns of human psychological behaviour.

Online syntheses of his work (e.g. Thornton, 2006; Blum, 2003; Chiriac, 2007) indicate that Freud contributed the following insights to the human 'thought experiment':

- Human beings experience desire at the deepest core of their being;
- Such desire can be inappropriately directed, according to social convention, at maternal (Oedipus complex) or paternal (Electra complex) figures and is thus repressed;
- Early experiences of rejection or 'wound' inflicted by our parents cause psychological injury that may surface in adulthood and are manifested as disease.

In the context of learning mediated by technology, it may well be that it is desire, for status or authority, privilege or position that impels a self to learn. Reflections on the illustrative moments that form the research objects of the study do contain whispers of ambition and aggrandisement. Cross-references therein to Maslow's hierarchy of needs are evident and so it is important to acknowledge the rectitude and relevance of some of Freud's insights in the context of my own story.

Dawkins accounts for desire as a necessary biological impulse required for reproduction and thus the *selfish* preservation of a self's own genetic make up, "The evolutionary importance of the fact that genes control embryonic development is this: it means that genes are at least partly responsible for their own survival in the future, because their survival depends on the efficiency of the bodies in which they live and which they help to build" (Dawkins 1978 p. 25). He skates over the issue of incestuous relationships, save where, the mingling of genes to strengthen chances of survival is deemed to be a good thing and less likely if mating occurs with a self that possesses the same genetic makeup (i.e. a self's parents). Damasio's research prompted him to conclude that the physiological modifications through which a self passes during a stimulus-response operation are embedded in memory and are re-enacted when causal stimuli are applied to the self. "As far as I can fathom, few if any perceptions of any object or event, actually present or recalled from memory, are ever neutral in emotional terms. Through either innate design or by learning, we react to most, perhaps all, objects with emotions, however weak, and subsequent feelings, however feeble" (Damasio 2004 p. 93)

This accounts for the repugnance experienced by a victim of abuse who relives their experience every time the abuser is present to them whether or not there is physical contact. A comparison can be made at this point with the work of Timothy Gallwey, and the suite of books that emerged from his seminal text, *The Inner Game of Golf*. Here Barry Green rehearses an experience familiar to many musicians:

"I was a nervous wreck. I felt sick to my stomach and was certain I would forget the music I had taken such pains to learn. Playing in front of the acknowledged masters in one's field is hardly the sort of thing that's conducive to self-confidence and ease. My hands were sweaty, my knees wobbled (which is a problem when you're holding a double bass), my heart was pounding, and I had trouble just breathing comfortably." (Green & Gallwey, 1986 p.24).



Green goes on to state that the remembering of such moments can, in later life, be so overpowering, that subsequent performances can be blighted and affected too. Conquering these feelings, is he says, playing the inner game and also one step on the road to greater musical accomplishment (Green and Gallwey 1986 p.26). The similarities between these insights and those of Damasio are obvious. Indeed, the neurological data that might have been gleaned by the latter, had Green been wired up at the time of his adjudication, would have been fascinating. Though not relevant here *per se*, it seems likely that teachers' early experiences of failing technology may inhibit their engagement with it. If such data disasters have occurred in front of pupils, the psychological baggage will be even greater. Mental re-enactment, "even the thought of it", may reproduce such feelings of panic and/or anxiety that they may well be prevented from even thinking about trying again. Further scientific support for this theory may be emerging in the work of Mukundan,

"Brain Electrical Oscillations Signature profiling – or BEOS - works by analysing a subject's brain activity in response to a series of statements – or probes - detailing their suspected involvement in the crime. When they hear a true statement which tallies with their experience their brain has a kind of flash of remembrance which is registered by a computer." (BBC, *All in the Mind* 2008)<sup>14</sup>

Freud (1923) noted that where the ego had repressed such experiences the reaction could be just as strong despite the impact of the sub-conscious on the self. Victims of abuse may have repressed the memory so powerfully that it only surfaces in therapy when a skilled psychiatrist is able to nurture it back to cognisance and then treat it.

It is important to note that which is of significance from this short survey of scientific approaches to the self. In physiological terms the self is a complex organism comprising a myriad of genetic, chemical, molecular tissue and substances (Polanyi, 1962; Dawkins, 1978,

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<sup>14</sup> Further non-technical reference to this potentially important work can be found at this blog...  
[http://ankurbetageri.blogspot.com/2006\\_11\\_01\\_archive.html](http://ankurbetageri.blogspot.com/2006_11_01_archive.html)

2006). It also houses a brain which in turn contains that which is known as the mind or *psyche* (Freud, 1923; Bly 1992; Biddulph, 1995). The potentialities and corresponding limitations of that organ are yet to be discovered but what is known (Damasio, 2004; Mukundan, 2008) is that external stimuli are processed by it neurologically and cause modifications to the body which are manifest in behaviours and physical symptoms.

## 2.2.4 Spiritual approaches to the ‘Self’

Spiritually, the self is an intangible being, formless and timeless, which is on a journey to *moksha* (See RE-Net 2006<sup>15</sup>), salvation (Lk 9:25), *nibbana* (See RE-Net 2006), *Valhalla* (Lindemans 2002), depending on the spiritual tradition in which it finds itself. In each tradition here represented the self is accompanied on its journey by a body. Separation of the two is impossible even though, historically, divergent sects within each tradition have attempted to do so<sup>16</sup>. Certainly anything which separates mind from body and spirit is, in Christian theological terms, heretical. It is perhaps, therefore, more appropriate to argue that to describe a self or selfhood is to promote a deeper understanding of an integrated and whole self where body, soul and spirit are as one.

One of the characteristics of the human condition is its inquisitiveness and sense of curiosity. It is this that has taken personkind out into space and to the depths of the ocean. Journeying or questing like this is commonplace in the lives of many. Spiritual journeys or pilgrimages can be found in the narratives of the founding figures of the principal religious traditions of the UK. In the Semitic traditions, Abraham, the common ancestor of Jews, Christians and Muslims left Ur of the Chaldeans in search of truth and selfhood and crossed out of ancient Mesopotamia to a land flowing with milk and honey (Gen 11-12). In Jewish foundational texts, later canonised by the founding fathers of Christendom (e.g. Ireneaus of Lyons who is credited with the assembling of the Bible at the beginning of the 2<sup>nd</sup> Century of the Christian Era), Moses crossed the Sea of Reeds to escape persecution and slavery (Ex 12-14). Jesus of Nazareth, the itinerant preacher of Christianity, toured the towns and villages of Israel on an inexorable journey towards Jerusalem,

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<sup>15</sup> It is to be noted that this term is used in both the Hindu and Buddhist traditions that emerged from the Indian sub-continent.

<sup>16</sup> By way of illustration here, it is necessary only to talk of the Gnostic sects of early Christianity that reinforced dualistic approaches to the self, like those whose thought inspired the apocryphal Gospel of St. Thomas (See. <http://www.friktech.com/rel/canon/thomas.htm>)

the centre of his own faith tradition in order to complete his mission on earth (Mt 4:23). The prophet Muhammad (*pbuh*) journeyed to *Al-Madinah*, in order to find the freedom to practise his true belief and out of respect for his own selfhood (Al-Kadhi, 2007 p. 5). Prince Siddhata Gautama journeyed outside his palace walls in order to begin his own quest for self-enlightenment and ultimate liberation, “It occurred to me that life in the home is cramped and dirty, while the life gone forth into homelessness is wide open; it is difficult to live a spiritual life completely perfect and pure in all its parts while cabined inside” (M I 241 of the Pali canon).

It is not an accident that Maurice Natanson called his book, *The Journeying Self: A Study in Philosophy and Social Role* (Natanson 1970). That is what selves do when they want to discover truth, enlightenment and liberation of the spirit – they journey. The whole of their self participates in the process, their bodies, minds, souls and spirits for it is in this holistic engagement with the world that true insight and wisdom is accumulated and selfhood enhanced.

Selves, Hume argued, remembered the sensory experiences that had led them to behaviours or responses, but these were grounded in empirical realities and not just perceptions:

"Every one will readily allow, that there is a considerable difference between the perceptions of the mind, when a man feels the pain of excessive heat, or the pleasure of moderate warmth, and when he afterwards recalls to his memory this sensation, or anticipates it by his imagination"

(Hume in Warburton 1999 p.2660)

It is no surprise that the English analytical tradition in philosophy has as its wellspring this empiricist approach and it may well be appropriate to blame Hume for the consequent difficulty many have in seeing the self as an integrated human being. It is, after all, a short step from here back to the platonic dualism that was eschewed by Jesus (See Mt 10:28 “Do not be afraid of those who kill the body but cannot kill the soul. Rather, be afraid of the One who can destroy

both soul and body in hell”) or to the ‘Cartesian error’ that asserted the primacy of reason over more visceral ways of knowing (after Damasio, 2004). For philosophers such as Camus (1913-1960), Sartre (1905-1980) and, most significantly for this study, Heidegger (1889-1976) and Husserl (1859-1938)<sup>17</sup>, the body-mind problem was less acute and this may well explain the greater ease with which, certainly the French, were able to grapple in the last century with questions of metaphysics, existence, phenomenology and non-empirical routes to truth. Christian theology has been careful to assimilate these findings into its own thought experiment so that authentic accounts reflect important insights. MacQuarrie, wishing to present a synthesis of continental existentialist philosophers’ ‘take’ on the self, asserts,

“An authentic self is a unitary, stable, and relatively abiding structure in which the polarities of existence are held in balance and its potentialities are brought to fulfilment.”  
(MacQuarrie 1977 p.74)

It is perhaps here, at the confluence of philosophy and spirituality, that epistemology takes over as language becomes the tool for describing (representing, perhaps) and interpreting knowledge acquired from intellectual, physiological, visceral and spiritual/religious experiences. What is clear is that ‘truth’ will be dependent, contingent and subjective according to the context in which it is experienced. This is not to adopt wholesale a relativist approach (e.g. Derrida, 1992; Foucault, 1972; Erricker, 2007; Jackson, 1997, 2006), rather it is to propose that what is known about selves, and about myself in particular, will only be meaningful for an observer able to empathise with the setting. To make the point it is worth observing that Jesus clearly journeyed to death on the cross which is a ‘fact’ substantiated by evidence in the literary history of the time<sup>18</sup>. That this act of martyrdom ‘ransomed’ mankind forever remains, however, a ‘mystery of faith’ accepted by millions, who experience their own resurrected Christ, but is derided by others

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<sup>17</sup> Reference and attention is paid to the works of these philosophers and their contribution to the study in chapters 3 and 4.

<sup>18</sup> Both Josephus, the Jewish antiquarian and Tacitus the Roman historian, who would have had a vested interest in the death of Jesus report it as though he were just another ‘dreamer’ in need of punishment. Their testimony is proof, however, of his existence as a real person in history. Only empathy will cause a person to make the leap of faith required to assert that this man was also God. (See Bettenson 1979 pp 1-3)

(e.g. Dawkins, 2006). So a Christian ‘self’ might base their religious practice on a profound religious experience as in the cases of Augustine, John of the Cross or Ignatius Loyola mentioned above.

### 2.2.5 Post-modern approaches to the 'Self'

By the middle of the last century when Foucault was at work, modernist tendencies within philosophy had opened up the possibility for thinkers to explore the concept of the self outside the limits of linguistic analysis. The 'self' as an entity was no longer to be seen as either object or subject, in Scruton's phrase the 'grammar of self-reference' (Scruton, 1994 p. 484), as a direct challenge to the earlier work of both Hume (1711-1776) and Kant (1724-1804) but also of Descartes (1596-1650) and his *cogito ergo sum* principle:

"We think of ourselves as self-conscious observers of our world, occupying a unique perspective upon it – the perspective summarised in those mysterious words 'I, here, now'. But we also suppose ourselves to be part of the world, changing and changed by it, observable to others, and bound not only by a common moral law, but by the natural order of the universe." (Scruton, 1994 p. 482)

In essence, these 'two irresistible but incompatible thoughts' (Scruton, 1994, p.482) are, it seems to me, complementary parts of the hermeneutic circle that emerged as a tool for personal, political and professional analysis as the second half of the 20<sup>th</sup> Century wore on (Gutierrez, 1971; Friere, 1972). In my view, progress is made in each of these three domains of human endeavour when a self seeks enlightenment and understanding by:

- evaluating prior experiences,
- assessing present realities
- interpreting events in the light of contemporary theories
- synthesising new wisdom from each of the above.

For me, this is learning in the 21<sup>st</sup> Century.

As will be seen in section 2.2, there are the first inklings here of an emerging framework. Each of these can be mapped to the four 'N' factors that seem to combine to form such a framework. It would be tempting to jump straight to that point but there are other insights in the next few pages which contribute to its theoretical underpinning, which might get lost if not approached in logical sequence.

The problem of post-modernism is, however, the very individualism that it encourages since one potential outcome is anarchy and the decay of any societal structures.

“Ours is the era of unadulterated individualism and the search for the good life.” (Bauman, 1998 p.2-3)

These words of Bauman, taken out of context, might have been uttered by Margaret Thatcher, Prime Minister of Great Britain when I was an undergraduate who could also be said to have applied the logic of Darwinism (as evinced by Dawkins, 2006) when she opined,

“And, you know, there is no such thing as society” (Thatcher, 1987)

Re-experiencing the visceral reactions to this statement, suggests that at the time I was disinclined to agree with her. It is interesting to play with the concept again, now that I understand the *zeitgeist* in which it was made and to approach it from a different perspective as encouraged by phenomenologists. True empathic approaches would require me to attempt to ‘stand in’ Mrs. Thatcher’s shoes in order to understand her perspective and the selfhood from which she made the statement. Of greater importance and more pressing concern is the necessary examination of Bauman’s statement which represents a post-modern<sup>19</sup> approach to ethics. If he is right, the logic is that each self should by definition engage only in those

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<sup>19</sup> Bauman chooses to join post and modern together as one word. In keeping with the philosophical tradition there is no consensus as to whether a hyphen between the two is grammatically accurate. My preference is to signal the progress from ‘modernism’ by the use of a hyphen.



behaviours that bring personal fulfilment, pleasure, gratification and the selfish replication of 'my genes'. Paradoxically, here, there is a convergence of Darwinism and relativism.

Taylor (1984), working within a post-modern approach to the study of theology adopts the concept of 'erring' as a way of playing with ideas. He says, "'Erring extends to the reader an invitation to participate in a "thought experiment"' (Taylor, 1984 p. 17). As long ago as 1984 he described the role of the self in making sense of experience and literature – he uses the word "scripture", consistent with the discourse within which he was writing – and makes this important observation:

"This infinite interrelationship of interpretations cannot be captured in a closed book; it must be written in an open text. Texts point beyond themselves to other texts. In view of this intertextuality, it becomes apparent that writing is a ceaseless process in which writer is already reader and reader necessarily becomes writer." (Taylor, 1984 p. 16)

This is a remarkable pre-figurement of the 'intertextuality' of the internet incidentally – today it would be described as non-linear hypertextuality. Fundamentally, moreover, it points to the dynamic relationship between a self and that which it is reading/learning. The reflective cycle<sup>20</sup>, and, in my view its older sister, action research, depend on the learner interpreting the messages of their learning and applying them in the context in which they are working. Thus, the self takes control of the truth of a situated reality. Charles Taylor charted the evolution of the concept of the self through the history of western philosophy arriving in his final section at an analysis of the then contemporary scene. He argues that, 'Modernism succeeds...in the search for sources which can restore depth, richness and meaning to life' (Taylor, 1989, p. 495). Presumably then Taylor would celebrate any modern technology which restores depth, richness and meaning to the learning process. He would certainly acknowledge the need for tools which can liberate the self from ignorance, intellectual impoverishment or alienation. Law describes

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<sup>20</sup> A popular iteration of the hermeneutic circle of Gutierrez's methodology (Gutierrez 1993)

this as liberation technology (Law, 2001 p.160ff). This is an important insight for the next section of the study but before moving to a discussion of what is meant by technology within this thesis, it is important to complete this analysis of the self by exploring insights from within phenomenology, the starting point for the section. To do so requires also the analysis of the self in ‘mundanity’.

## **2.2.6 ‘Mundane’ approaches to the ‘Self’**

At this point it is worth pausing to reflect on how the concept of the self is used in ‘mundanity’. Space determines that remarks are confined to the context of education, which is the dominant arena for this study. It is reasonable to state that there has been considerable effort recently to analyse teachers’ selves as a thought experiment among educationists (Beijaard et.al., 2000; Roberts, 2000; Day et al., 2006). None of this work constitutes, however, work in the ‘philosophical attitude’ as proposed by phenomenologists (Natanson, 1970; Sokolowski, 2000); rather it arises from qualitative research projects more likely to rehearse the outcomes of emotional, rather than cognitive processes (MacLure, 1993; Boyatzis, 2001; Day et al., 2006; Day et al., 2007). What emerges in the outputs of these research enquiries are statements which illustrate forces that impact on teachers’ selves and their professional identities:

“Because of their emotional investments, teachers inevitably experience a range of negative emotions when control of long-held principles and practices is challenged, or when trust and respect from parents and their students is eroded.” (Day et.al. 2006 p.612)

What appears to be absent from these enquiries is the teachers’ own analysis of her/his own self. Where a teachers’ perception of her/his own self is reported, it is usually confined to a description of the situated reality, a narrative or a biography and how these relate to her/his own sense of identity (MacLure, 1999; Roberts, 2000). Inevitably, a deficit model emerges,

“..teachers’ lives become a topic of concern for what they are not; where identity is always incomplete, alienated or inaccessible; and where the aim is to remedy these shortcomings of the self. The notion of development comes to be applied, not only to professional practice or public conduct, but to identity itself, which is held to be in a state of suspension.” (MacLure 1999 p. 321)

Since research outcomes such as this dominate the field it is not surprising that therapeutic responses are currently being deployed to help teachers “get better”. Weare writes that,

“Having a clear, positive and realistic self-concept includes:

- Liking myself (although not always liking my behaviour)
- Valuing and respecting myself as a unique individual
- Being able to identify and feel positive about my own strengths
- Being able to identify my own limitations and vulnerabilities, and accepting them without undue self-blame or guilt
- Seeing myself as separate from others, with the right to be treated with respect and kindness by others
- Not being harder on myself than I am on others
- Understanding aspects of myself, such as my personality, preferences and needs
- Having an accurate and realistic assessment of how I compare with others at the moment”

(Weare, 2004 p. 23)

I find this a thought-provoking statement about the current ontologies of teachers, both because it can be interpreted as a positive agenda for self-evaluation but also because it could become a tick list against which school managers might begin to assess the personal identities of their staff. For me, it provides the kind of construct whereby I can begin to analyse more deeply, the motivations and impetuses that caused myself to adopt the professional learning dispositions and behaviours I did. Certainly this research process is causing me to have to understand, "aspects of myself, such as my personality, preferences and needs." (Weare, *ibid*)

Models of coaching, however, currently being embedded in leadership and management programmes within the National College for School Leadership, for example, are predicated on the assumption that participants need to be shown where their deficiencies are so that they can move forward in the professional lives and thus – it is thinly veiled – improve the quality of

schooling for pupils (NCSL, 2007). Noteworthy in this field of professional learning is the uncritical acceptance of the work of Boyatzis (e.g. 2001), Goleman (1996), and Goleman, Boytzis & McKee (2002) whose ideas are presented as though they were fact. As indicated earlier, critiques of such policies are now beginning to emerge (Burton, 2008; Ecclestone and Hayes, 2008)

"Of course, people differ in their abilities in each of these domains [Salovey's extrapolation of Gardner's theories]; some of us may be quite adept at handling, say, our own anxiety, but relatively inept at soothing someone else's upsets. The underlying basis for our level of ability is, no doubt, neural, but as we will see, the brain is remarkably plastic, constantly learning. Lapses in emotional skills can be remedied: to a great extent each of these domains represents a body of habit and response that, with the right effort, can be improved on." (Goleman, 2001 p.44)

In the emotional intelligence project, exemplified here, there is a clear presentation of the self as a professional in need of activity in the four domains of emotional intelligence:

"self-awareness, self-management, social awareness, and relationship management."  
(Goleman, Boyatzis, & McKee, 2002 p. 30)

Emotionally intelligent schools may be nice places to work and learn but they can only be called schools if they impact as much on matters of the head as on matters of the gut. Remaining operational within the affective components of a self alone is likely to cause ineffectiveness in its other constituent parts. Indeed, as was referred to in the introduction, phenomenologists would argue that it is in the acceptance of the complexity of a self that we can begin to understand the 'moments' that combine to make a 'whole'.

A response to this might well be that teachers simply do not have the time or the energy to adopt the philosophical attitude so as to excavate themselves in order to understand the fullness of their being or their potential. This, in turn, may explain why schools can often seem intellectually bankrupt and why 'stretch and challenge' have to be made mandatory rather than being naturally

organic. The point is, however, that as a professionally-detached observer of the phenomena of teacher selves in the phenomena of schools, there is a dominant ‘mundanity’ about the ways in which they are and continue to operate. As Natanson notes,

“The self, then, lives in a social reality defined through a complex of types, constructions of typical elements and aspects of possible actions. The stockpiling of such types starts in childhood and continues throughout the life of the individual.” (Natanson 1970 p. 20)

To end this survey of the ‘self’ in literature, it is appropriate, now, to turn to what phenomenologists say.

### 2.2.7 Phenomenological approaches to the ‘Self’

This section commenced with a brief statement of how the phenomenological attitude accounted for a range of beliefs around the same issue. More will be said about it as a methodological framework in chapter 3. Here the focus is specifically on what phenomenology has to say about the self. Why it is useful here is because it enables the drawing together of the range of philosophical approaches to knowledge and the self that have been investigated hitherto. If the last sub-section ended around the 1980s, it could be argued that this sub-section appears in chronological sequence and brings this historical survey up-to-date. This is possible only if it is accepted that post-modernism precedes phenomenology. In reality, they overlap and insights emerging in one discourse may inform and enrich the other and *vice versa*.

Bob Jackson argues that his own ‘interpretive approach’ (Jackson, 1997) emerged from his engagement with the so-called phenomenological method in Religious Studies pioneered by Ninian Smart (Smart, 1976). In conversation with Jackson (See RE-Net, 2007), it became apparent that the interpretive approach evolved out of phenomenology because empathy alone was not, in Jackson’s mind, sufficient to gain an understanding of the ‘other’. This is an important critique of phenomenology since one of its central tenets is the way of knowing that proceeds from the ‘I-other’ relationship (Natanson, 1970 p.33).

“I am inter-subjective by taking and working with another’s roles” (Natanson, 1970 p.34) and “... the other is typified by the self through the role played by the defining self” (Natanson, 1970 *ibid*). This is fascinating in the context of the creation and presentation of virtual identities made possible by web-based social networking utilities such as [www.facebook.com](http://www.facebook.com), [www.secondlife.com](http://www.secondlife.com), [www.bebo.com](http://www.bebo.com) as seen above and discussed further in section 2.3. Its relevance here is to point to another helpful insight of phenomenology and that is of the

existence of an 'alter ego' for each self. "...what is There for the ego is Here for its alter" (Natanson, 1970 p. 32) and the reverse is also true. Sokolowski dwells on the importance of presence and absence: "we live constantly in the future and in the past, in the distant and the transcendent, in the unknown and the suspected, we do not live only in the world around us as it is given to the five senses" (Sokolowski, 2000 p.37). Of note here, though, is the centrality of the self as the meaning-making instrument living in reality. Sokolowski goes on: "another important singularity in our spontaneous experience is the SELF, the ego, the I. If the world is the widest whole and the most encompassing context, the I is the center [*sic*] around which this widest whole with all the things in it is arranged" (Sokolowski, 2000 p.44). For Sokolowski, "...the I is the dative of manifestation" (Sokolowski, *ibid*).

Jackson's critique was, in part, based on his own realisation that the process of research in which he was engaging was influencing him just as much as he was influencing others and the project (See RE-Net, 2007). His decision was to underpin future developments of the Warwick research project with three concepts: 'Representation, Interpretation and Reflexivity'. The latter of these will be explored more fully in chapter 4 since it is an essential component of the methodology I wish to deploy in the analytical part of the enquiry. Representation, as he envisages it, becomes a foundational concept within sub-section 2.3 (information) Technology as I seek to show how technology enables computer users to represent themselves. As a 'moment' in the 'whole' of his adaptation of the phenomenological approach, I wish to pause here and explore how 'Interpretation' is useful for individual's understanding of themselves, and I, of myself.

In phenomenology the concept of 'intentionality' is central (Sokolowski, 2000 p.8). This describes the relationship a subject has to its object(s). A relationship can exist in presence or absence so that I may teach my students online even if they are not actually present through the

use of an asynchronous conferencing tool. That I intend learning upon them is sufficient for the relationship to exist. If I wish to analyse myself, then, adopting the phenomenological attitude, I can intend towards myself as a ‘detached observer’ providing I do so consciously (Sokolowski, 2000, p.8). If I choose, then, to interpret the outcomes of that activity I may grow and develop in consciousness and action. There is an ontological link from interpretation to reflexivity as expressed by Jackson (RE-Net, 2007), which coincides elegantly with notions of the hermeneutic circle advanced by Gutierrez (1971) referred to earlier and which emerges as pivotal in the auto/biographical method that is the main methodological tool for this study.

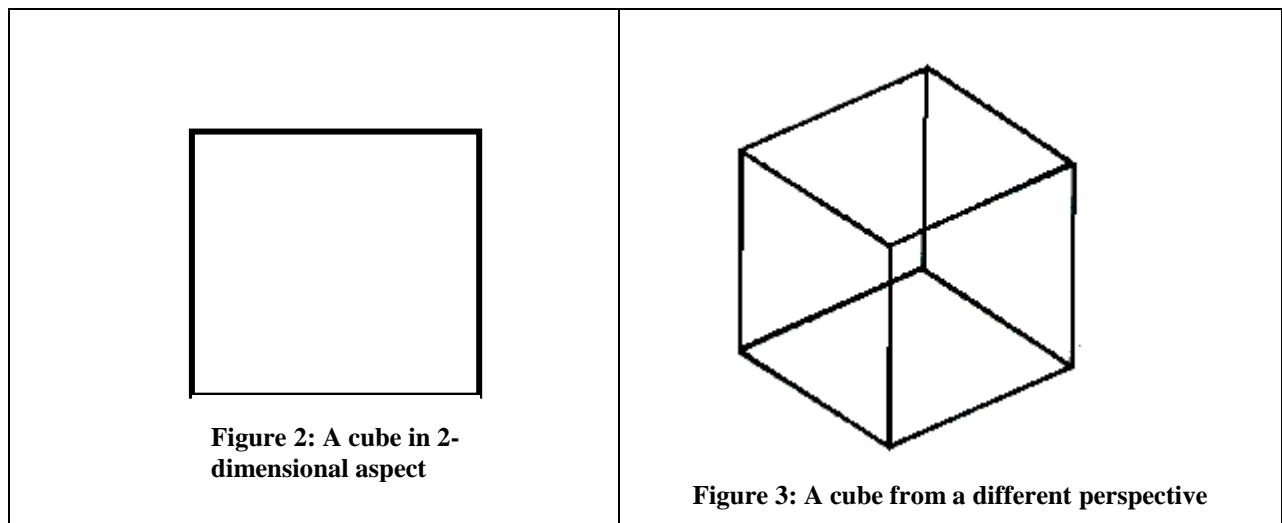
“The core doctrine in phenomenology is the teaching that every act of consciousness we perform, every experience that we have, is intentional. It is essentially “consciousness of” or an experience of something or other” (Sokolowski, 2000 p.8)

So if I intend towards myself as an act of “self-consciousness-raising” – Gutierrez (1971) and Boff (1971) would call this process, ‘conscientization’, I become a legitimate phenomenon worthy of investigation.

A further component of phenomenology is the ‘issue of appearances’ (Sokolowski, 2000 p. 3). This is explained in much of the literature by the metaphor of the ‘cube’. Gurwitsch (2010) extends the metaphor of a ‘cube’ to that of a ‘house’ to illustrate the point more fully. One of the problems with straightforward observation is that it can render findings in two dimensions only. In effect, it is only like a non-critical reading of a text where no attempt is made to analyse what is ‘written between the lines’ or operates as a sub-text to a plot. Instead of examining an object from a flat perspective as characterised by figure 2 below, it can be more helpful to look at it from a range of angles, a variety of perspectives, from ‘round the back’, at the side, from above and from below as signified by figure 3 which shows the same object viewed from a corner-on perspective.



This model and theoretical perspective is employed deliberately in chapter 4.



Changing the perspective from which an object is viewed can very much change the perception of what is seen and what it represents. The object can look very different. Indeed, looked at in certain ways the ‘Neckar Cube’ (figure 3.) can look like a stylised eight-legged creature. Changing the perspective from which a self is viewed might render similarly startling results.

Without paying due homage to its intellectual foundations, Damasio applies this phenomenological method to his own analysis of the phenomena of feelings,

“Feelings are perceptions and, in some ways, they are comparable to other perceptions. For example, actual visual perceptions correspond to external objects whose physical characteristics impinge on our retinas and temporarily modify the patterns of sensory maps in the visual system. (Damasio, 2004 p. 91)

Of significance here is Damasio’s clear acknowledgement that observable phenomena are interpreted by the individual personally.

“Feelings also have an object at the origin of the process and the physical characteristics of the object also prompt a chain of signals that transit through maps of the object inside the brain. Just as in the case of visual perception, there is part of the phenomenon that is due to the object, and a part that is due to the internal construction the brain makes of it.” (Damasio, 2004 p.91)

This is similar to both Natanson's (e.g. 1970) and Sokolowski's (e.g. 2000) approaches, though he diverges from them in that his explanation of the self's reaction to a phenomenon is neurobiological as opposed to their explanations which tend to accentuate social, demographic or historical factors. What his work shows however is that, albeit, sub-consciously the critical use of a phenomenological approach can be instructive in a range of learning settings.

One last observation is crucial. In the philosophical/phenomenological attitude – please note the decision to make these two terms explicitly separate but implicitly connected and thus represented conjoined – both 'I' and 'Me' are important:

“The Me is the source, then, of what is typical and habitual in experience. The I, of what is innovative and audacious.” (Natanson, 1970 p.18)

## **A contextualised approach to the phenomenon of the self for this study**

“Like Kant, he” (Wittgenstein) “believed that philosophers often unwittingly stray beyond the limits into the kind of specious nonsense that seems to express genuine thoughts but in fact does not do so.” (Pears, 1997, 2<sup>nd</sup> edition p.12)

Mindful of Pears’ caution when writing of Wittgenstein, it has been my intention – in the mundane attitude – to present a range of literature that has been consulted to show how the self is regarded within the philosophical/phenomenological attitude. The intention has been to express genuine thoughts. In the process, and as an outcome of a post-writing reflexive process, it seems as though three themes have emerged:

- The importance of linguistic accuracy and specificity when tackling a potentially amorphous topic like the self;
- The centrality of ‘I’ and ‘Me’ (both subject and object) within the thought experiment that this study represents;
- The impossibility of shedding theological training from the processes of reflection and writing, nor the deployment of metaphors and models derived from religions, the discourse of religious education and my own religious experiences.

This latter point would be troubling were it not for the cautions already applied in relation to the potential solipsism of Buddhist reflection, on the one hand, and action research on the other. Moreover, what also emerges from a critical investigation of phenomenology is the opportunity to undertake a structured, contextualised approach to my own self in the expectation that such a journey will yield potential learning gains that will be of use to Me, as well as I, and to other selves within the professional domains in which I operate. I can no more detach myself from my own situated reality than I can empathise fully with one of Bob Jackson’s research subjects

given that I am not Hindu, do not live in Coventry or Warwick and am not still at school. But, I do have a life history and a whole host of experiences both positive and negative that, when shared, might be interesting to others and my own interpretations of those experiences may enable me to become a more effective practitioner and ultimately a reflexive professional.

Intuitively, perhaps even viscerally, I do not think that this ‘philosophical investigation’ will result in the outpouring of specious nonsense. This will be warranted as a statement if learning gains are derived from the process. I will acknowledge however, the challenge of producing an objective piece of work in the context of a thesis predicated on auto/biographic methods (see chapter 4).

## 2.2x: Relevant Insights derived from the first stage of the literature review

In order to set the scene for my review of the literature surrounding technology, it is appropriate to set out some of the insights derived from the literature review so far. The reasons for doing this are to articulate the sources of literary support for my hypothesis and to show how my reading contributed to the development of the theoretical framework which underpins the study. Section 2.3 has been written to show where each factor of that framework is found in the relevant literature. It was necessary to start to arrange things in this way so as to limit the volume of material that might have been included. It is intended that the four factors of the framework are seen in section 2.3 and so the shorthand descriptor ( $N_x$ ) is inserted where relevant to point this up.

The principal finding of the literature survey so far is this: In the 21st Century, it is widely held that new knowledge is the outcome of the inter-relationship between pre-existing knowledge that a self holds as a result of learning experiences in formal and informal contexts and its encounter with sensory phenomena. Selves recognise phenomena in a wide variety of forms and categorise experience accordingly. Thus I identify the phenomenon of 'dub step' as a form of music despite its difference from a Bach Chorale, that which might be by some identified as the perfection of musical experience. I categorise Irish Wolfhound and Chihuahua in the same genus as 'dog' despite the very obvious differences and I categorise as 'food' both the experimental *haute cuisine* of Heston Blumenthal and Tesco *Value* beans. The point is that all phenomena are assessed by the 'knower' in the way s/he has grown accustomed to so doing. Support for this notion comes from Whitehead and McNiff's reportage of the insights of Malcolm Gladwell:

"... in Blink (2005), Galdwell sets out the idea that seemingly snap decisions are grounded in complex developmental processes of knowing from experience." (Whitehead and McNiff, 2006 p.34)

Perhaps it is this 'knowing from experience' that enables my learning with technology.

Autobiographically, it does seem as though I have assessed the multifarious phenomena categorised as 'technology' as potential aids to learning - the principal project of my career.

Some moments in that autobiography have been profound and, in them, learning has been mediated by technology. It is to be noted that I did not undertake this review of the literature in isolation from reflecting on experiences or from engaging in the reflexive auto/biographical process that is set out in chapter 3. Inevitably then, insights were emerging about the nature of my professional learning co-terminously and dialogically with the growth in my knowledge acquired through reading.

A secondary finding of the research so far is this: When a self sets about learning something new: a skill, a piece of knowledge, a piece of software, a new piece of display equipment and so on, a number of factors seem to combine to catalyse and then embed the change. This, I would warrant as 'true' in my case.

These factors would seem to be the need to learn whatever it is in the first place, like, for example, when we all had to learn our (Personal Identification Number) PIN codes off by heart in order to operate our bank accounts. Moreover this is a self-referenced need in that 'I know I need to learn this'. If I don't perceive a need to learn it, then I don't. In some ways, therefore, learning now implies a personal commitment.

Secondly, some prior knowledge is required, either of existing frameworks, or keywords to enact searches, or foundational knowledge on which applied knowledge is dependent. For example, in order to operate Google's epoch-making search technology one has to know how to launch a browser and locate the URL <http://www.google.co.uk>. Using my prior knowledge of a topic,

may enable me to limit the number of hits I get from the search engine when otherwise, I would quite literally be drowned in data.

Thirdly, in my experience (as also evidenced in appendices 1-6), particularly in the 21st Century and especially in technology-related learning contexts, the self participates in appropriate networks or as I might say now, 'communities of professionalism' - a self wishing to learn how to teach undertakes a programme of study leading to an award which is staffed by those possessing theoretical and practical knowledge (incorporating the principle of 'recent and relevant'). When it comes to learning a new technology now, I rarely visit the textbook; rather I will open up a browser, type in some keyword operators, follow the links to the online *fora* and search within them for those people who have solved the technological issue for themselves. Noteworthy here in support of this assertion are the following words of Seymour Papert, a seminal 'knower' in the context of this study:

"... the computer presence might, I think, plant seeds that could grow into a less dissociated cultural epistemology." (Papert, 1993 p. 38)

Finally, the literature seems to suggest that learning is completed when the 'knower' applies the newly-acquired knowledge, skills or understanding in a new context (Bloom, 1953; Kolb, 1984; 2005). In the most basic of illustrations, the discovery of the <undo> button in Microsoft Word can be like a personal epiphany for a user who then sees it on the toolbars in Excel, Access, Powerpoint and so on,

"I wish you'd shown us this a year ago...it would have saved me hours!" (Andy Lee, PGCE RE student 1999)<sup>21</sup>

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<sup>21</sup> Thirteen years ago, when this was uttered, I was not tuned into the 'knowledge transfer' agenda. Today I would be celebrating this as evidence of my proficiency as a facilitator of professional learning.

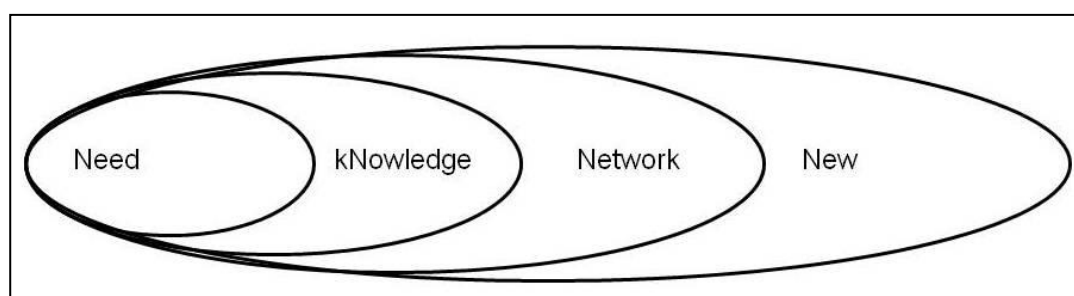
The four factors or phenomena of learning in the 21st Century identified through my survey of the literature, reinforced by reflections on relevant experiences, can all be summed up in one word each as in the illustration here:



**Figure 4:  $N^4$**

It is a coincidence that each one begins with a phonic sounding 'n'. One might say, therefore, that learning in the 21st Century, expressed as an equation, might look like this  $N^4$ . In mathematical contexts a number  $n$  to the power of an index - expressed in superscript as in my equation usually means the base number multiplied by itself a given number of times - thus  $n^4$ , where  $n = 4$  is the sum of  $4 \times 4 = 16 \times 4 = 64 \times 4 = 256$ . In normal case, the index would mean the base number multiplied by the index,  $n \times n$  which, in my equation would simply be  $n \times 4$ . This would mean that learning was simply the product of need, knowledge, and networks tested in new instances.  $N^4$ , as I prefer to express it, implies the constant multiplication of need, with knowledge, participation in networks and the ongoing and relentless testing of the idea, concept, skill or piece of understanding in new and ever-changing situations. The more a self adds to the process, the better the knowledge gained, or understanding developed.

If this is the case then the illustration above might be more powerfully rendered as in the next figure:



**Figure 5:  $N^4\#2$**



It is important to read this diagram in the dialogic context of the reflections on a prior learning experience recorded in section 4.1.5 (IM5), for example, and figure 23 (Fullan's model, 1990). It is intended to show the interdependence of each of the different factors, especially when what is to be learned is a new technology, a new ICT skill or a new piece of software but it might include anything that a self wished or needed to learn.

So I want to argue now that the hypothesis to be explored in this study is, in shorthand terms, professional learning episodes where learning is signified by  $l$ , and amounts to a simple equation  $l = N^4$ .

### **The Four Factors/Phenomena of the Emerging Theoretical Framework**

It is my contention that for a learning episode to be profound, a learner is likely to experience all of these phenomena, if not necessarily in sequence. Graphically so far, the framework has been set out in linear fashion, but a learner could be anywhere in the process at any time. It is unlikely, however, that they could apply their learning in new settings before it has been learned. Thus it is more likely that a spiralling-dialogic approach will occur as a learner grows in knowledge and understanding by experiencing the factors at different times, depending on where they are in the process. Hence the proposal here that  $N$  to the power of 4 ( $N^4$ ) equates to a profound professional learning experience. In other words, the sum of engaging with all four phenomena in a learning episode will be greater than individual encounters with each i.e.  $n \times n \times n \times n$ .

The literature surveyed so far helps with the classification of the  $N$ s, which seems important if they are to be reliable components of or factors in the theoretical framework towards which the

thesis is working. Though an apparent interruption to the flow of this chapter, it seems important to take time to explore the characteristics of each N more fully.

## **Need**

'Necessity who is the mother of invention' (Plato, 2004)

The platonic axiom, rehearsed above, is directly relevant, in my experience to the context of technology-learning. I have observed that human beings only learn technologies when they need to. To reinforce this point historically, the Turing Machine, one of the precursors to modern PCs was the direct output and outcome of the British need to find a way to crack the codes generated by the German military during the second world war (Hodges, 1992); its invention was the product of extensive research and application of mathematical and logical principles. In section 2.2, sources quoted suggest that the kind of profound learning that underpins such an invention is the case when 'a self notes that it has a self-referential reason for study'.

As indicated above, the origins of this can also be found in the theories of Freud (1923) and Maslow (1943). I have witnessed many education professionals become childlike when confronted with a new technology, especially if they perceive no need to learn to use it. The 'data disasters' I referred to above can become psychological blockers for selves, as in that moment described in the context of music by Green and Gallwey (1986). The narrative of this thesis (appendix 2) begins with my urgent need to learn to use a computer properly because I had said that I could. I had no way out and was at risk of committing professional suicide if I did not meet the challenge I had set for myself.

Another approach to justifying the inclusion of need in the emerging framework comes from the liberationist foundations of much of my pre-existing knowledge base. Gutierrez (1971) and

Freire (1972) would argue for the moral imperative for education to be one of the vehicles for lifting the most needy out of their situations of marginalisation and oppression. Without misappropriating their theory, I believe that even now in the UK there is a need for education professionals to use whatever means they can, including ICT, to lift themselves and their pupils out of the oppression of ignorance.

## **Knowledge**

The inclusion of the phenomenon, characterised for my emerging framework as, 'knowledge', derives from my observation and reading that human beings can only make use of learning technologies if they already possess that which contemporary epistemologists describe as 'performative' knowledge. In section 2.1, a more full description of this is summarised as 'the self utilises its prior knowledge, skills or understanding to access appropriate digital learning resources'. Performativity as defined by Lyotard (1984) and enunciated by Polsani (2002, 1 and 2), once I discovered it in New Zealand, literally, helped me to understand how we use what we know already to master the things we do not as yet know. In order to use a satellite navigation system (satnav), you have to know the address or, even better, the postcode. The act of punching the locus into the device is, for me, a daily act of performative knowledge. 'Knowing', here is not just a noetic phenomenon (Natanson, 1970; Sokolowski, 2000), it can be utterly embodied or unconscious as in the phenomenon of 'touch typing' or 'intuitive', in the sense that Gladwell explains in *Blink* (Gladwell, 2006). The point here is that humans control machines; machines do not control them. This is warranted to be 'true', through the literature in section 2.3, even in a world where human beings have created 'artificial intelligence'. There is no 'ghost in the machine' (Ryle, 1990); there is no body-mind dualism as in the Cartesian error, against which Ryle was writing. Here, in technology-related learning, phenomenologically, body and mind are as one.

The next sub-section challenges this holistic approach since it begins to argue that one of the pedagogical agents from whom professional learning can be derived is the disembodied machine that connects to other disembodied machines through the utterly material architecture of computerised networks.

## **Network**

Postulation of the phenomenon ‘network’, for the emerging theoretical framework, derives from my observation that human beings learn technologies best when they can share their learning with others, have access to good models or can ‘play’ with equipment or software in ‘safe’ and ‘comfortable’ settings. Crucially, learning appears to occur when there is an ‘agent’. In each of the appendices 1-6, I recall how a person, a teacher, a tutor, even a piece of carefully written technologised training material contributed to profound learning experiences in my case.

Humans may learn well from peers, as I observed in the very earliest days of my unconscious participation in this process (appendices 2 and 3) or perhaps, for the first time in the history of humanity, directly from machines. Described more fully in section 2.3.3, ‘network’ is described as how, ‘the self actively participates technologically in the social co-construction of meaning through focused and relevant communities of practical or professional enquiry’ (after Wenger, 1998; 2001 – see Smith, 2003). It is to be acknowledged here that ‘network’, in keeping with modern technological discourse is both noun and verb. The notion of a rhizomic network is more fully discussed in reflections on my time in New Zealand (appendices 1 and 4 and in section 4.3.3). Learning about it was mediated by the words and works of Polsani (2002, 1 and 2); he was my pedagogical agent.

Polsani's accidental intervention in my lived experience triggered a variety of activities and self-directed learning opportunities, many of which are written up in chapters 3, 4 and 5 and especially in appendices 1 and 4. As appendix 1 shows, I began to experiment with his ideas whilst still at the conference in order that I would be ready to apply them in new professional contexts on arrival back at work.

## **New**

Postulation of the phenomenon 'new' derives from my observation that human beings become confident and competent technologically when they are able to apply new knowledge and understanding in a different context or setting. In essence this is how the competing core applications software Microsoft Office and Macintosh *iLife* programs work. 'I' know that <File> and <Save> stores my work in Microsoft Word so that when I meet the same commands in Microsoft Excel, I have instant understanding of what I am supposed to do to protect my content. 'I' may learn to use one virtual learning environment which is providing technological support in one educational setting, but if I have confidence and competence with it, even if I move to another software client used in a different educational setting, I may have only momentary loss of operational effectiveness. The concept of 'transferable skills' is predicated on this notion of the utility of knowledge in ubiquitous settings. So, for a professional learner, the success of an informal learning episode with technology is likely to be the ability to do the same thing in another context. The literary origins of this phenomenon are attributable to Bloom (1954) and Kolb (2005), both of whom have had an enduring impact on teachers' professional learning programmes. Their schemas are frequently referenced by those seeking to make the point that learning that remains in the head and is not rolled out in practice will wither and atrophy. This is explored further in sections 2.5 and 2.6.

## **The emerging framework**

In my judgement, derived from reading and dialogic reflections on experience, profound professional seems to occur for me when I have a need to learn something, I have some prior knowledge or skills to draw on, or that can enable me to perform some functions, there are expert agents to consult who can supplement my emerging understanding and I can apply newly-acquired knowledge in other contexts.

If I seek to generalise these emerging findings from my own context of technology-mediated learning to the wider context of teachers' professional learning mediated by technology a theoretical framework begins to appear. It looks like this:

1. A self has a self-referential reason for study ( $N_1$ );
2. The self utilises its prior knowledge, skills or understanding to access appropriate learning resources ( $N_2$ );
3. The self actively participates in the social co-construction of meaning through focused and relevant communities of practice ( $N_3$ );
4. The self critically evaluates these episodes and is able to apply new synthetic understandings in relevant practical or professional contexts ( $N_4$ ).

There is an underlying assumption in this model which is that this is very much an adult approach to learning and thus the term andragogy may be more useful in the sense in which it is used in the present discourse of lifelong learning (Knowles, 1978). To distinguish this from a strictly pedagogical approach, it would be fair to note, that the curriculum for most pupils (i.e. children engaged in formal schooling) is determined by their teachers and the extra-curriculum by other adults including their parents. Autonomy in learning is not a normative experience in

the experience of school-aged children in the UK. The essence of this approach is that it is the learner themselves who drives the process of knowledge and skill acquisition, development and deployment. In this next section I attempt to explain this in more detail.

### **A Further Exploration of the Emerging Framework for Technology-Mediated learning**

The table below is presented to further aid the process of exploration. Each proposition has been converted into a row in the table indicating a phase in the process and, for each factor, characteristic behaviours have been identified as well as technologies which may contribute to the development of knowledge within each aspect. Each of these could be evidenced from my own personal, or professional experience.

<b>Factors</b>	<b>Description</b>	<b>Characteristic behaviours exhibited</b>	<b>Exemplar technology</b>
Factor 1 (N <sub>1</sub> )	Identification of need for knowledge or skills	Driving forces 'poke' need for change	E-mail Gap analysis tool e.g. P.G.C.E. subject knowledge audit ( <i>stimulus technologies</i> )
Factor 2 (N <sub>2</sub> )	Utilisation of 'performative knowledge' to open learning gateways	Metacognitive searching, (Research), heuristics	Google TTRB ( <i>search technologies</i> )
Factor 3 (N <sub>3</sub> )	Social co-construction of meaning through andragogic networking in rhizomic communities of practice	Joining, forming or participating in focused/relevant groups	Google groups Facebook VLEs ( <i>collaboration technologies</i> )
Factor 4 (N <sub>4</sub> )	Dissemination of newly synthesised understandings in practice, publication or professional development activities	Reviewing, writing, reporting, deploying or publishing new knowledge	Blog Website PDF Youtube DVD ( <i>distribution technologies</i> )

A reasonable critique of this model might well be that learning does not occur in such a strictly delineated fashion. This is affirmed since the framework is speculative and provisional at this stage of the doctoral process. It is expected that this model will evolve as the research develops. At this point, then it is presented as an hypothetical framework only. It does, however, shape what follows. Logically, then, it seems to make sense to apply this insight to the review of literature about technology which comes next. In so doing, the aim will be to see if these factors and the hypothetical framework are also to be found there.



### **2.3.0 Reframing the literature review**

In section 2.1 the concept of epistemology was explored in order to establish a context whereby it would be clear what exactly I meant when I used the term 'knowledge' both in relation to the general principles of research as befitting a doctoral study and also within the specific context of this study. It was a wide-ranging review and was conducted, I now realize, in the manner of a theological study which begins by surveying the history of ideas, 'drops-in' on those that are relevant to the topic and 'tees up' the specific points to be made by the author. In that discourse it is therefore relatively straightforward to assert the provenance of an idea, theory or hypothesis. The method is what enables the claim to be made that, '... we are standing on the shoulders of giants.' Metaphorically our new ideas are the product, at a given moment in time, of blending new experiences with 'ancient' wisdom. Having developed this insight I now intend to apply the approach to the next section so that reflections on key texts around Information and Communications Technology will also become part of the theoretical background to the latter parts of the study.

In section 2.2, I attempted an historical and multilateral review of literature to draw strands of thought together from across the disciplines of theology, psychology and philosophy both Western and Eastern traditions - this also befitting of a 21st Century piece of work which would inappropriately discount insights deriving from Eastern philosophical traditions despite the work being undertaken in a European context.

This means that my understanding of the self, generically, and myself specifically derives from insights garnered from a survey of global literature. This is appropriate since much of the work undertaken in and around this project is the outcome of thought processes from across the world,

delivered by 'knowers', scholars, thinkers and arguers working out of a wide range of academic, spiritual and cultural traditions.

Serendipitously, as a tool for escapist reading on my summer holiday 2011, I selected the 'best-seller', *The Lost Symbol* (Brown, 2009). The novel is fanciful and controversial but it does contain some interesting observations about the state of the human condition at this moment in time. It also provides verifiable accounts of the influence that technology is having on the human condition and explores some of the issues tangentially relevant to the present study: things like artificial intelligence, augmented reality, cybernetics and so on. Most intriguingly, it explores the inter-relationship between ancient wisdom and cutting edge thinking, making the following series of points:

"A change is coming. Human beings are poised on the threshold of a new age when they will begin turning their eyes back to nature and to the old ways... back to the ideas in books like the *Zohar* and other ancient texts from around the world. Powerful truth has its own gravity and eventually pulls people back to it. There will come a day when modern science begins in earnest to study the wisdom of the ancients... that will be the day that mankind begins to find answers to the big questions that still elude him." (Brown, 2009 p. 92)

Prior to going on holiday, I was privileged to be at the 'Proms' premiere of the *Concerto for Turntables and Orchestra*, written by Gabriel Prokoviev (Grandson of Sergie) and performed by DJ Switch<sup>22</sup> with the National Youth Orchestra (NYO), (Symphony Hall, Birmingham, 3rd August 2011). This a radical fusion of traditional Western orchestral music and so-called popular culture. A year previously the NYO had performed works by the 20th Century composer, Edgar Varese, who had experimented then with electronically-derived sounds influencing, in the process, more populist musicians like Frank Zappa. At one after-show party,

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<sup>22</sup> A whole essay could be written about the way in which DJSwitch was using a computer interactively with his turntables to re-create the sounds of the orchestra while the acoustic instruments were playing 'call and response' with him. This was pre-figured by the artist Moby on his seminal album 'Play' in 2002 where he too used modern technology to re-create the sounds of traditional instruments. I wrote about this phenomenon at the time and presented the idea at a staff conference in Canterbury in 2003. As reinforcement of that point and others made here, DJSwitch, read his score for the piece from a *Macbook Pro* eschewing the traditional music stand.

the sounds of Varese were 'mashed up' in popular parlance by a DJ working the crowd in the foyer of the Sage Theatre in Gateshead. What this points to is the 21st Century phenomenon of 'fusion'.

Restaurateurs also experiment with so-called 'fusion' cooking where culinary insights from around the world are 'played' with experimentally in kitchens to produce ever more interesting and challenging tastes and menus. Each food 'artist' produces their own 'signature' dish and style creating individual eating experiences. Of course old techniques, ways of doing things, ancient culinary knowledge and recipes are added 'to the mix' but new technologies, new flavours, new tastes render them forever adjusted and enhanced. There are, for instance, things one can do with a microwave that could never have been achieved over an open fire.

The insertion of this additional section in the study is to explain that the next piece of writing about technology is very much a 'fusion' or 'mash up' of some old ideas with new technology. As such, the methodology is different from that used to review the underpinning literature found in sections 2.1. and 2.2. In section 2.3, therefore, I look at how technology has shaped learning and where some old ideas like constructivism have been re-invigorated within this context. Rather than a theological canter through the history of technology, the piece is designed to be read as an interweaving of reflections around specific historical moments in the evolution of computer-assisted learning. Chapters 4 and 5 contain writing which I would argue now interweaves reflections on historical moments in my career as it developed alongside the evolution of computer-assisted learning.

Section 2.3 acts therefore as a bridge between writing 'old style' and a literary mode more in keeping with the theme of the thesis. Symbolically, it marks the end of old ways of knowing -

even my old way of being 'self' - and opens up the rest of the study to a more dynamic and dialogic way of interweaving self with technology and epistemology. From this point on it reads more readily as a piece that takes account of the insights from the literature survey which were highlighted at the end of section 2.2.

I attempt to do this by paying attention to the four 'N's of what appears to be an emerging framework. This section therefore operates at two levels: a generic review of literature in the domain and, where relevant, signposts to material that amplify, in the arena of learning, need ( $N_1$ ), knowledge ( $N_2$ ), networks ( $N_3$ ) and the application of learning in new ( $N_4$ ) contexts or situations.

## ***2.3 Relevant Literature about (Information) Technology***

### **2.3.1: Historical accounts of the emergence of technology**

In order to provide some coherence to the section I have tried to organise my writing around a gradually-narrowing focus. I start with the big picture which amounts to a chronology of the history of information technology. I focus in on the impact this has had on pedagogy/andragogy and then focus in on how learning technologies have influenced freedom or liberating movements, since as was seen in section 2.2, liberation is one of the goals of education.

There are a number of texts that have been heavily influential on the development of my knowledge base, written in such a way as to make the subject interesting and intriguing, surprising given the potential dryness of the content. Of particular note in this category are the biographic *Alan Turing: The Enigma* (Hodges, 1992), the docu-novel *iPod, Therefore I am* (Jones, 2006), the journalistic, *The World is Flat* (Friedman, 2006) and the historical, *The Facebook Effect* (Kirkpatrick, 2010). In addition the works of Standage (2000), *The Victorian Internet*, Naughton (2004) *A Brief History of the Future* and Galambos and Abrahamson's (2002) *Anytime, Anywhere: Entrepreneurship and the Creation of a Wireless World* have also contributed to the multi-disciplinary nature of the study, bringing to my understanding contributions from history, economics, politics or business environments. In order to keep this section focused, I have concentrated remarks specifically on learning technologies and their evolution.

Most influential on the development of my thinking - and indeed an underpinning text for some of my own published work (e.g., Hughes, 2003) - was the fascinating book, *Complexity: The Emerging Science at the Edge of Order and Chaos* (Waldrop, 1993). This book might also be

described as a docu-novel since it charts in narrative form the rationale for, development, foundation and outputs of the Santa Fe Institute in California. This academic hub, bearing all the characteristics of a learning network ( $N_3$ ), drew in a range of 'arguers' and researchers all working on different aspects of 'chaos' theory but in different professional domains and using different professional discourses. So, computer scientists worked alongside economists, mathematicians, particle physicists, molecular biologists and systems analysts. What emerged in this exemplary interdisciplinary experiment - itself evidence of prior knowledge ( $N_2$ ) being used in thought experiments - was the theory that rather than there being chaos evinced by empirical analysis of the world there is 'complexity'. Complexity being, in summary, the observed behaviours of a 'system that is complex, in the sense that a great many independent agents are interacting with each other in a great many ways' (Waldrop, 1993 p. 11). Waldrop goes on to say, 'Think of the quadrillions of chemically reacting proteins, lipids, and nucleic acids that make up a living cell, or the billions of interconnected neurons that make up the brain, or the millions of mutually interdependent individuals who make up a human society' (Waldrop, *ibid*).

Complexity theory is based on the assumption that underlying these phenomena are mathematical patterns that determine their behaviour and that that behaviour is dynamic and adaptive and evolving though not necessarily in a linear manner. Technologically, webs have formed in much the same way throughout history<sup>23</sup> and, ahead of the invention of the internet, complexity theorists posited the notion of the interconnectedness of computer-based systems that would also be adaptive and dynamic. This one quotation has been an ever-present in my thinking and presentations and has been a benchmark to which I have often returned when challenged in some professional training contexts:

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<sup>23</sup> This is the key point that Standage makes about the Victorian internet being a precursor to the present day phenomenon (see Standage , 2003)

"Moreover, these technological webs can undergo bursts of evolutionary creativity and massive extinction events, just like biological ecosystems. Say a new technology like the automobile comes in and replaces an older technology, the horse. Along with the horse go the smithy, the pony express, the watering troughs, the stables, the people who curried horses, and so on. The whole subnetwork of technologies that depended upon the horse suddenly collapses in what the economist Joseph Schumpeter once called a 'gale of destruction'. But along with the car come paved roads, gas stations, fast-food restaurants, motels, traffic courts and traffic cops, and traffic lights. A whole new network of goods and services begins to grow, each one filling a niche opened up by the goods and services that came before it." (Waldrop, 1993 p. 119)

This one quotation exemplifies clearly that human creativity is often caused when a genuine need ( $N_I$ ) is identified. Waldrop ascribes this thinking to Brian Arthur, one of the founding members of the Santa Fe Institute who describes this phenomenon as 'lock in', "...once a new technology starts opening up new niches for other goods and services, the people who fill those niches have every incentive to help that technology grow and prosper." (Waldrop, 1993 p.119)

The history of my engagement with educational technology reflects this phenomenon (see appendices 1-6). Reflecting on the narrative of my career indicates the extent to which I have become 'locked in' to new ( $N_d$ ) technological ways of facilitating learning and have demanded ever increasing functionality and facility of technologies so that increasing returns might be driven from each learning episode<sup>24</sup>.

A similarly chronological review of texts that deal with technology-enabled learning amplifies the above point. In this category, the following are examples of influential and relevant material. Referred to in Waldrop (1993, p. 115) for his contribution to complexity theory but in any case a stand-alone contributor to the emerging body of literature is Seymour Papert whose *Mindstorms*:

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<sup>24</sup> Just today (7<sup>th</sup> July 2011), I have shared a 'google doc' for the first time with my supervisory team, partly as a means of enabling access to those working in disparate locations (Nottingham, Wolverhampton and Prague) but also because I can. It is the application of a new skill acquired working alongside employees of a start up technology company Anspear Ltd., in a different domain ( $N_d$ ).

*Children, Computers and Powerful Ideas* (1993) has seminal significance in the context of this thesis. For example, he writes,

"In my vision the computer acts as a transitional object to mediate relationships that are ultimately between person and person. There are mathophobes with a fine sense of moving their bodies, and there are mathophiles who have forgotten the sensory motor roots of their mathematical knowledge. The Turtle establishes a bridge. It serves as a common medium in which can be recast the shared elements of body geometry and formal geometry. Recasting juggling as structured programming can build a bridge between those who have a fine mathetic sense of physical skills and those who know how to go about organizing the task of writing an essay on history." (Papert, 1993 p.184)

Similarly influential have been Salmon's (2000) *E-Moderating: The Key to Teaching and Learning Online* and *E-tivities: The Key to Active Learning Online* (Salmon, 2002), as well as Kearsley's (2000) *Online Education: Learning and Teaching in Cyberspace*, Thorne's (2004) *Blended Learning: How to Integrate Online and Traditional Learning*, Lynch's (2002) *The Online Educator* and Wenger, White and Smith's (2009) *Digital Habitats: Stewarding Technology for Communities*. What can be seen, even in the titles of the text themselves, is the evolution of the discourse which continues to move from talking about computers (see Papert, 1993) to communities (see Wenger, White and Smith, 2009). Thus, it is fair to say, that in parallel to the development of my career - as narrated via appendices 1-6 - there has been a commensurate development in thinking about the influence of technology on learning. We are no longer concerned with what computers can do, we are concerned with what they, more generically categorised as 'technology', can do for us as communities of professionals – put simply networks ( $N_3$ ),

"Technology extends and reframes how communities organize and express boundaries and relationships, which changes the dynamics of participation, peripherality and legitimacy. It enables very large groups to share information and ideas at the same time as it helps smaller groups with narrower, more specialized and differentiated domains to form and function effectively. It allows communities to emerge in public, opening their boundaries limitlessly, but it also makes it easy to set up private spaces that are open only to members. It affords many ways to limit access, expressing intimacy or privilege, or it can greatly enlarge a group's periphery. A person who comes across a community site as a result of a search engine, combs it



for ideas and information, and never comes back is part of the largest periphery."  
(Wenger, White and Smith, 2009 p.11)

Examining texts written around the middle section of the time frame for this study, from around 1996 to 2006, it is clear that the concern of authors was how technology could be used to enable collaboration, co-operation and constructivist approaches to learning. Collis (1996) notes,

"Educationally there is a growing movement toward acknowledging the value of cooperative work and computer-supported cooperative work is a multidisciplinary growth area." (Collis, 1996 p. 406)

She goes on to say,

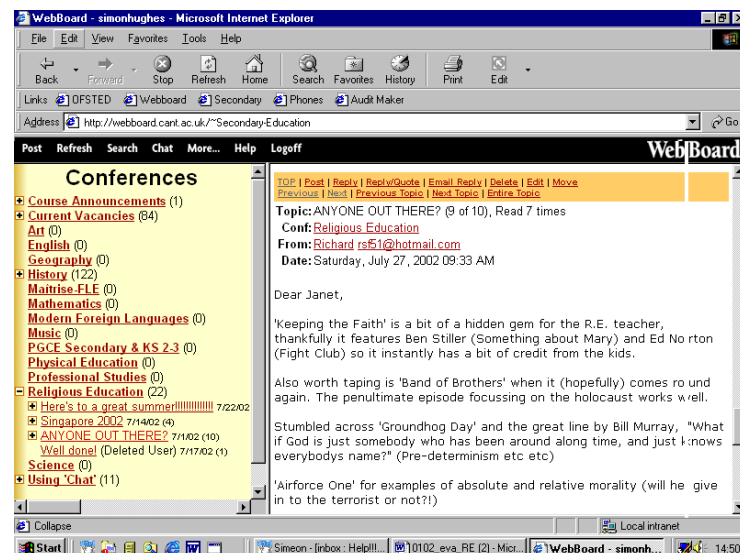
"Interconnectivity and integration also refer to the movement toward regarding computer use as an integrated part of the educational environment integrated in terms of computer application in traditional subject areas, but also in terms of computers as a catalyst to stimulate more integration of subject areas." (Collis, *ibid*)

Kearsley was the first author I came across who systematically tried to map the emerging landscape of the potential uses of technology in education (see Kearsley, 2000). Writing around the turn of the century he introduced me to terms like MultiUserDomains (MUDs) and Multi User Interfaces (MUIs) (Kearsley, 2000). It is more than coincidence that one of the most widely adopted so-called virtual learning environments is MOODLE (Modular Object-Oriented Dynamic Learning Environment). MOODLE is a multi user domain in that many people can be inside a virtual learning environment (VLE) all at the same time and it is supported by a user interface that allows for many people to operate it synchronously<sup>25</sup>. It could be argued that a fully-functioning VLE is the current technological zenith of a learning network (N<sub>3</sub>)

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<sup>25</sup> Gillespie, Boulton, Hramiak and Williamson (2007), base a whole book for teachers in training on the assumption that MOODLE will be the virtual learning environment they will have to use when they arrive in schools. In the period from about 2004 to the present day, schools have invested significantly in VLEs. In that time I have experienced professionally, *Fronter*, *Frog* and RM's *Kaleidos*, none of which are significantly better in terms of affordances (see Collis above or Wenger, White and Smith, above) than Moodle (Now that MOODLE has been turned into a global phenomenon, its acronym has been adopted as a brand name and thus it is appropriate to use from here on the normal case spelling).

Historically, it was a small matter of months before practitioners in the field had started to condense such apparently complex phenomena into short hand terms like e-learning (see Salmon, 2000). The next few years saw the development of a range of proprietary software products delivering virtual learning environments. As can be seen in appendix 4, in November 2002, I had the privilege of witnessing Dr. Mary Smith teaching students in Fiji from her office in Palmerston North in New Zealand using *WebCT*, one such virtual learning environment. Canterbury Christ Church University where I working at the time, took a different path and adopted first O'Reilly Associates' *Webboard* (see figure 6 below) before settling on the *Blackboard* Virtual Learning Environment.



**Figure 6: Screen dump of Webboard**

I have included figure 6 for two reasons. First, it timestamps this piece of evidence as the date shown is 27th July 2002 and, as such, helps to provide chronological evidence for this work. Second, it provides evidence that I was an early adopter of technologies where I could see value and utility in my facilitation of professional learning (in essence, a working example of what I mean by  $N_4$ ). For each of the subject areas recorded in the left hand pane, with the exception of history (122), there were at that time no other subjects using this multi user domain to facilitate co-operative learning.

Simultaneously, there were some attempts to categorise the type of people who used computers or perhaps more accurately to categorise where, on a continuum a person's behaviour with technologies, placed them. Most would agree<sup>26</sup> that this continuum starts with 'innovators' or pioneers, continues with 'early adopters' (Salmon, 2000 p. 71) and 'later adopters' and then takes on the majority of people who are likely to take more time to 'buy in' to the new idea or technology. At the end of the line are those who are categorized as 'laggards', 'luddites', 'resistors', even 'sloths', whose behaviour is characterised by resistance to change - this group of people is over-represented in the teaching profession and were a notable challenge when eventually I ended up working on the Building Schools for the Future project around 2008. This behavioural phenomenon has been noticed by others working in the field:

"Change - inevitable as it is - continues to be perceived by most educators as a threat. The question for educators is whether to be a part of the change or a victim of change. Too often, as educators, we have allowed others to make system-wide decisions for us. Too often, we have behaved like bystanders, reacting to change rather than being proactive planners or active participants and contributors." (Lynch, 2002 p. 2)

The identification of resistant behaviours appears in all the writing that was emerging as I embarked on this literature survey, indicating and indeed reporting the belief on the part of many that they did not need ( $N_1$ ) to change:

"Simon, we're an outstanding school [according to Ofsted]! Why do we need to change?" (Anon<sup>27</sup>, 2009)

Some notable examples of readings that were informative at that time include Prensky's influential *Digital Natives; Digital Immigrants* (Prensky, 2001), a controversial paper and thus one that triggered some important bits of thinking. Of the divide between digital natives and digital immigrants, he notes,

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<sup>26</sup> See QuickMBA.com (<http://www.quickmba.com/marketing/product/diffusion/>) for a single reference to a coherent expression of these types of behaviours. Whilst the reference here is to consumers, the behaviours described are directly comparable to those displayed by all sectors of society approaching new technology.

<sup>27</sup> This is a direct quotation from the Vice Principal of one of the schools on the BSF project I was working on who, even by 2009, was still exhibiting the behaviours identified by Lynch.

"It's very serious, because the single biggest problem facing education today is that our Digital Immigrant instructors, who speak an outdated language (that of the pre-digital age), are struggling to teach a population that speaks an entirely new language." (Prensky, 2001 p. 2)

In more temperate language Sherry Turkle<sup>28</sup> makes a similar point in a landmark paper entitled *Computers and the Human Spirit*,

"Children in a computer culture are touched by the technology in ways that set them apart from the generations that have come before. Adults are more settled. In the worst of cases, they are locked<sup>29</sup> into roles, afraid of the new, and protective of the familiar. Even when they are open to change, established ways of thinking act as a braking force on the continual questioning so characteristic of children." (Turkle, 1990 p.266)

Whilst a recent critique of Prensky's work (Helsper and Eynon, 2010) sets out a wider range of factors causing a person's engagement or not with technology, the reality is that there was at the time generational 'lapping' going on if not a generational gap (Helsper and Eynon, 2010 p. 505). It seems as though, there has been a narrowing of the gap in the last decade and adults are able now to keep up with younger people who are themselves entering adult life bringing with them their, sometimes, technologised learning styles:

'... if being tech savvy is determined by exposure and experience, then collaboration and learning is possible in environments where younger and older generations interact.' (Helsper and Eynon, 2010 *ibid*)

Perhaps this generational gap was never as great as Prensky assumed or perhaps he was super-imposing on virtual/online/web-based contexts his assumptions about the 'disconnect' between traditional classrooms and their 'tech savvy' clients. Shortly after the publication of his work, Lynch was writing research-informed materials that were designed to give leadership and advice on setting up virtual classrooms (Lynch, 2002). She notes, 'Moving away from a focus on ourselves as teachers and focusing instead on the learner, we begin making the transition from

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<sup>28</sup> Papert's attribution of his own learning to Turkle is important in the development of the discourse. That they were married is a fact known to the community by his announcement of it in *Mindstorms* (Papert, 1993)

<sup>29</sup> It is worth noting that this is not the same type of 'locking in' as that enunciated by Brian Arthur (see above and Waldrop, 1992)

the traditional knowledge transmission model to a facilitation model that enables us to involve students in their learning processes.' (Lynch, 2002 p. 32)

Lynch makes these observations in a section on adult learners where she draws on insights derived from Knowles (1978; 1984) and to whom she ascribes the theory of 'andragogy' (Lynch, 2002 *ibid*). 'Adults', she says, 'have a great deal of experience and knowledge upon which to build' - that which I categorise as ( $N_I$ ) - and 'usually have specific learning goals in mind when they decide to continue their education' (Lynch, 2002 *ibid*). In the context of this study where it is my adult learning that is the subject of the research, Lynch's opinion that andragogy is at the constructivist end of the learning continuum is a helpful insight when considering more recent thinking about technologised learning.

Elsewhere (appendix 3) I refer to the importance of Polsani's paper (2002) that radically affected my thinking on the nature of knowledge in the information sphere after I heard him speak in New Zealand. This was at the same conference where I was taken by the thoughts of Lewis (2002) on knowledge-building environments and his re-working of Vygotsky's zone of proximal development for the new era (Lewis 2002 p. 4).

Much of the literature associated with the contribution of technology to learning refers back to Vygotsky's ideas. Grabe and Grabe (1998) make the point that 'Vygotsky is a classic example of a scholar whose ideas were much more influential after his death than in his lifetime' (Grabe and Grabe 1998 p. 68). His three core ideas summarised here as: 'speech/talk', 'scaffolding' and the 'zone of proximal development' are all components of 21st Century computer-supported learning. Combined they are characteristic of 'constructivist' learning episodes. It can be argued

that there has been a happy confluence of constructivist pedagogies and the emergence of computer-assisted learning. Sprague and Dede (1999) write,

'In a constructivist classroom, students are more actively involved than in a traditional classroom. They are sharing ideas, asking questions, discussing concepts, and revising their ideas and misconceptions. Such activity involves collaboration, with occasional competition, among students. Collaborative environments can encourage the knowledge construction model for lasting learning.' (Sprague and Dede 1999 p.8)

Sprague and Dede (1999 *ibid*) acknowledge the contribution of Jonassen's (1996) important work in this area and his influence on the development of their pedagogic approach. Writing from a different perspective Wenger, White and Smith (2009) write, 'The close, voluntary collaboration in communities enables their members to invent and share new uses for the technologies at their disposal. Communities often play a key role in the dissemination and appropriation of new technologies.' (Wenger, White and Smith, 2009 p. 12) In all cases what seems to be the case is that computers provide collaboration and communication tools which lend themselves well to knowledge-construction. Somekh (see e.g. 2007<sup>30</sup>) is pre-eminent in describing these phenomena as 'affordances'.

A brief examination of the '*Facebook Effect*' (see Kirkpatrick, 2010) illustrates this point well as users of this global technological aid to interactivity affords its users communication, collaboration and the construction of knowledge. My first encounter with a 'facebook' was on the second cohort of Teach First in 2004. In that iteration, digital photos were taken of all staff and participants and turned into an electronic document with brief résumés<sup>31</sup> of each person added, so that we all would know who each other was. It was little surprise to me that within two years of this phenomenon, I became aware of an online solution emanating from Palo Alto, California that was becoming widely available across campuses. This is itself a microcosm of

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<sup>30</sup> Somekh (2007) is a compendium of the most recent expression of her thoughts, re-publishing aspects of her work from the late 1990s.

<sup>31</sup> The use of the US English term has been adopted to account for the North American origins of this programme.

the fourth 'N<sub>4</sub>' of the emerging framework, an existing idea applied in a new technologised setting.

Kirkpatrick (2010) verifies this historical reflection by simply applying the title *2006* to a chapter which starts to chronicle the development of knowledge-construction tools within the 'Facebook'. This extract points to this event:

'The new tool they arrived at would help users find the information that most mattered to them at any given moment. That might include everything from which party a friend planned to go to on Friday to updates about the political situation in Tajikistan someone might have posted as a Web link. The point was to make sure you saw what you cared about, whatever it might be. The order in which information would be presented would depend on what you had shown - by your behaviour - you like to look at. Zuckerberg explained it to colleagues "A squirrel dying in front of your house may be more relevant to your interests right now than people dying in Africa"' (Kirkpatrick, 2010 p. 181)

The point here is that the 'Facebook' affords its users a range of technologies to conduct their social activities. Some early adopters have grabbed these affordances and used them in learning contexts too, primarily because the client group (i.e. the learners) are already familiar with the technology, use it seamlessly with the rest of their lives and because the user-interface is more attuned to Human-Computer Interface (HCI) values than many of the proprietary 'virtual learning environments'. A brief meta-analysis of this in academic contexts suggests that it is the additional affordance of a global platform such as Facebook or Google groups that enables users to bypass the silos created by Computer Services departments in schools, universities and local authorities who are tasked with locking systems down so that they are not subject to virus attack, the corruption of data, the compromise of information security or the potential risk to child or personal safety. The net effect of this is that the boundlessness of technology (Kearsley, 2000) and its ability to afford communication and collaboration (Somekh, 2007) is frustrated, causing early adopters to step outside the firewalls of their institutions and use social networking utilities to construct knowledge and meaning.

"New communication tools shake things up because it's hard for a threatened regime to control them. With a variety of circumvention tools, the internet is even more difficult to control. Why else did the Egyptian government shut down the internet as the revolution unfolded?" (Nash, 2011 p.1)

The transfer of the underlying principles in the above quotation to the context of education metaphorically makes the point. Two illustrations attempt to support the claims being made here; the first is about communication; the second about collaboration and construction.

In figure 7, it is possible to see how 'Facebook' is being used by Catherine Meehan of Canterbury Christ Church University to recruit new students, broadcast the successes of existing students and provide a platform for them working in dispersed and remote settings:

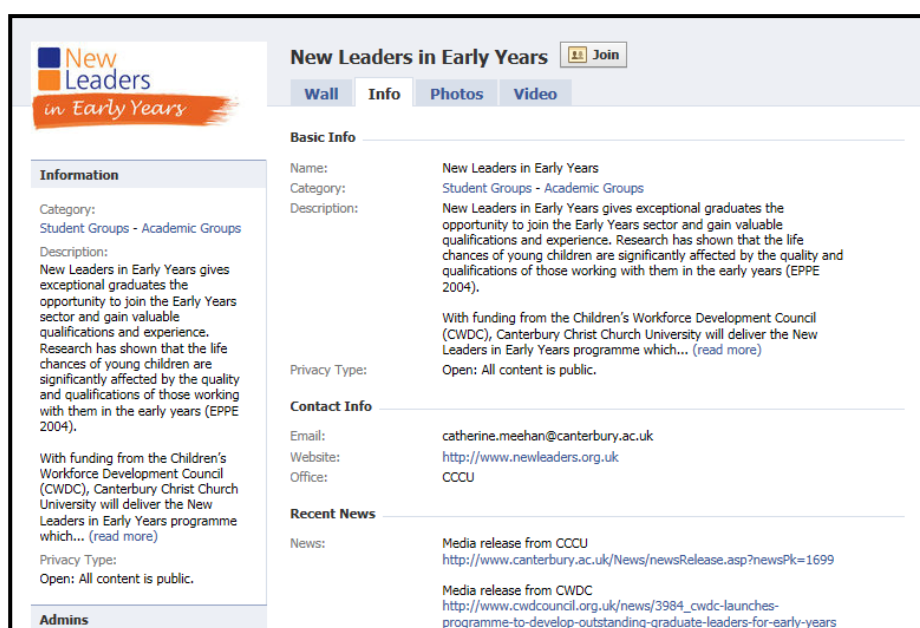


Figure 7: Facebook image 1

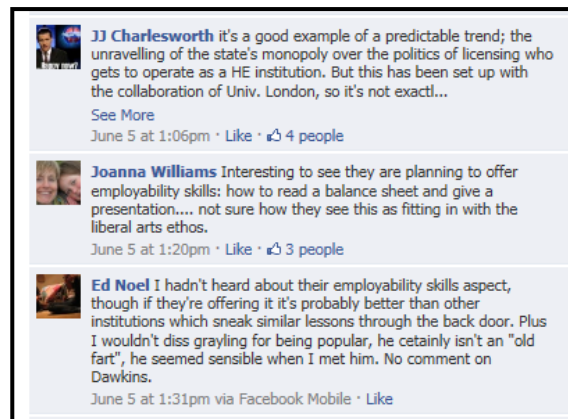
In figure 8, an inter-university group 'Academics for Academic Freedom' can be seen using 'Facebook' to share ideas and generate knowledge:





**Figure 8: Facebook image 2**

Noteworthy here is that the pedagogical agent, Dennis Hayes, provokes debate by making a proposition online. This is in keeping with the classical philosophical tradition of the protagonist. As a post-marxist scholar, Hayes frequently adopts this philosophical method to catalyse a dialogic episode. Unlike Socrates, however, Hayes is able to deploy the multi-user domain of 'Facebook' to catalyse something more akin to a 'multi-logic' episode. He 'posts' an article in which his argument is rehearsed and members of the group then respond using the technology. Anyone associated with the group can make a comment thus democratising the process of knowledge construction. In other examples, respondents submit other articles generated from their prior learning ( $N_2$ ) which help to increase the knowledge capital of the whole group ( $N_4$ ) - this appears to be a model of social-constructivism in action. Some of the postings may challenge the conventional wisdoms of the group, not unlike in a conventional classroom. The difference is that the emotion is taken away from the encounter, because everyone is at arm's length. This next example shows this clearly:



**Figure 9: Facebook image 3**

More is written in section 2.3.3 about the influence of technology on freedom. Here, the concern is the historical development of technology as an agent of learning, or perhaps it would be more appropriate to say, the emergence of a range of learning technologies which afford users opportunities for communication, collaboration and knowledge-construction. Somekh (2007) again,

"The development of new social practices will therefore be transformative to varying degrees, depending on the affordances of the tool, the skill with which human agents learn to use them and their ability to imagine new possible uses." (Somekh, 2007 p. 13)

In the examples cited it has been the academic staff who have explored the potential affordances of 'Facebook'. This, as Somekh noted. The power of 'Facebook' and other social networking utilities has been precisely their creators' ability to attenuate the software behind them and re-iterate according to the needs and demands of the user. This is exactly the phenomenon that Polsani described (see below, section 2.3.2) around a decade ago. In the 21st Century performative knowledge 'flow' is both the subject and object of the global human network.

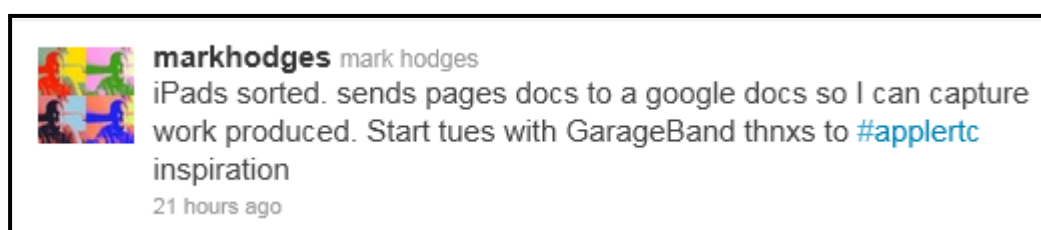
"Social networking (Linkedin, Facebook), blogs, webinars and microsharing (eg Twitter) are all examples of different types of social media technologies that are increasingly in everyday use both in and out of work, indicating that the appetite to collaborate and share across networks is huge." (Robinson, 2011 p. 13)

Robinson's statement above is a neat summary of where society is now with learning technology. Her writing arises from the experience of professional learning for business - her message is, however, transferable to the Education sector. For example, recent contract work has brought me into contact with two types of education users tweeting:

1. School managers<sup>32</sup> using twitter to get messages about their schools out beyond the confines of their own local authority firewalled IT systems e.g.



2. Educational technology pioneers<sup>33</sup>, trying to build a community of professionals who can share information, ideas and guidance for each other e.g.



Perhaps it is the affordance of tweeting from a handheld device that may be driving the adoption of this potential learning technology since there is no need to get hands on a terminal, no need to remember a password and no need to log on to a system that will take 90 seconds to load, require you to launch a further application and then find third party client software to contribute to the construction of knowledge. In the same of edition of *E.Learning Age*, Naish (2011) comments,

"Several practical issues compete for attention in e-learning: content, the learner's technological device and the delivery system/software. Ideally one achieves excellence in all three. But often coming late to the party, like the fourth musketeer, is the issue of adoption by the target audience; is the e-learning really used? Without successful adoption, the other issues (arguably) become irrelevant." (Naish, 2011 p. 6)

<sup>32</sup> Permission granted for this citation, see foreword

<sup>33</sup> Permission granted for this citation, see foreword

In effect what Naish is arguing is that we have now arrived at a point where the range of technology and the access it provides to learning resources is unsurpassed in history. What remains to be solved is the challenge of enabling the intended audience to engage with the intended learning episodes. Recent literature in the domain is tending to focus on how to achieve widespread adoption of the affordances of learning technologies. Naish cites one case study as evidence to support his hypothesis:

"...lawyers are raised on a diet of lectures/tutorials/textbook, at university and post-graduate law college, so naturally assume further learning will come from further doses of the same, plus on-the-job training." (Naish, 2011 *ibid*)

CPD for teachers likewise remains a mainly face to face affair. Perhaps the tipping point will be caused by the most recent addition to the range of potential learning devices - 'handhelds'.

Literature is already beginning to emerge about the potential affordances of new generation software tools known colloquially as 'apps'.

"... apps tend to do one job really well with the minimum of fuss. They are formatted perfectly for the devices on which they are based. They tend not to tempt you away from the job in hand with links, pop-ups and extraneous clutter. They can usually be accessed with a single touch. By comparison, I find that I hardly ever use the browser on my iPhone, mainly because most sites are unreadable or unusable." (Shepherd, 2011 p. 6)

Shepherd contributes an important point to my hypothesis. He is effectively saying that the clamour (a refinement of 'need'  $N_1$ ) for lightweight, handheld devices bundling together telecommunications software, access to the internet as well as software applications such as an organiser, led to the creation of PDAs<sup>34</sup> and, at the time of writing, iPhones, Android Phones and Windows Mobile 7. He reports however that browsing is best undertaken on a bigger screen device. To respond to this real HCI challenge, software developers - led again by the team at Apple - have produced a multitude of apps designed to facilitate 21st Century living - once again the application of new learning in a new context ( $N_4$ ). 21st Century learning is catching up and

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<sup>34</sup> Personal Digital Assistants.

there are an increasing number of learning-centred apps emerging on the market. Figure 10 is a simple screen dump of a selection of the results of the submission of the search term 'learning' into the *iTunes* Apps Store search engine<sup>35</sup>:



**Figure 10: *iTunes* Apps for learning**

The potential affordances of handheld learning were not lost on me as long ago as 2003-4 when I bid for and was awarded funding by the UK Training and Development Agency for Schools (TDA) to explore them in initial teacher education<sup>36</sup>. The device in question was the XDA II supported by O<sub>2</sub> which we used to capture digital video text of teachers in training in the classroom without the paraphernalia of a Teacher's TV film crew or a full-on documentary. I had already discovered the much-enhanced facility afforded by digital video in creating 'movies' of my own children. It was the application of this prior knowledge (N<sub>2</sub>) in the professional context (N<sub>4</sub>) that enabled us to secure the project's funding.

We also reduced to 640 x 320 pixel size, mobile word templates which created documents for lesson observations and which also, for example, gave users a handy app<sup>37</sup> of all the TDA standards on the handheld device. More recently, I have been involved in the marketing of a

<sup>35</sup> Taken on 18th June 2011

<sup>36</sup> Though not one of the selected IMs for this study, the XDA II project is a potent example of me applying an existing technology (e.g. the Word document) in a new context (N<sub>4</sub>)

<sup>37</sup> I have used this term here though it was not in common parlance at the time. Again, one of the benefits of hindsight.

handheld learning platform developed by Anspear Ltd. which makes English Language and Numeracy learning interactive, discrete, multimodal, portable and cheap. As an example of 'liberation technology' (Law, 2001 p. 165), I will return to the Anspear tool in section 2.3.3. Here, though, its development illustrates also how advances in technology are shaping the way we learn today and as Standish (2000) shows, this is because of the 'confluence of certain socio-cultural factors with elements of the hardware' (Standish, 2000 p. 152).

To summarise this section I have chosen to cite *verbatim* the following quotation written in 2000. It could be Standish's description of a museum exhibit:

"What is understood by 'computer' here is probably the desktop; typically this will incorporate the box housing the processor and drives, the keyboard and a screen...  
...The fact that we habitually think of the computer in terms of this particular configuration of box, keyboard and screen reflects, quite naturally, the way in which the technology has developed and the part that it plays in our lives. It is not difficult to imagine a different machine without screen or keyboard, one that relied primarily on a combination of number keypads, microphones and loudspeakers, and yet that used more or less the same microchips. The home computer that we in fact have has developed in the context of particular social activities and cultural meanings. It cannot be understood merely in terms of an inevitable technological evolution, a kind of inhuman force that increasingly determines our lives." (Standish, 2000 p. 151)

Is it possible that Standish had seen a prototype of the iPod? Might he have had a premonition of the ubiquitous spread of handheld devices? Could he have been predicting the emergence of virtual/touch screen keyboards? The reality is that technology is changing people as fast as people are changing technology - again the confluence of socio-economic factors and the hardware. In the context of this study, it is important to note that simultaneously the affordances of potential 'learning technologies' are changing with every release of new hard or software. In such circumstances the need ( $N_l$ ) for human beings to learn in agile and flexible ways seems to increase and thus it is appropriate to consider next the potential impact of technology on pedagogy/andragogy.

### 2.3.2: Accounts of the impact on pedagogy/andragogy of technology

"And these children that you spit on  
As they try to change their worlds  
Are immune to your consultations  
They're quite aware of what they're going through"  
*Changes*, David Bowie 1972, RCA Records

In this next section I want to explore some of the literature that reports the impact that technology has had on pedagogy/andragogy. It is outside the scope of this thesis to debate the nature of these two concepts. What follows are my own definitions of what I mean when I use both terms as shorthand descriptors for complex ideas and theories.

**Pedagogy** - A dictionary definition of this term has it as a noun meaning the "principles, practice or profession of teaching" (Hanks, 1989 p. 1131). I would extend this definition to be the science of teaching that encompasses: the role of the teacher who leads her/his pupil(s) on a journey to greater knowledge, skills and understanding; the role of the learner who follows the leader by participating in the activities and exercises designed to increase knowledge, skills and understanding and; the role of the academic who studies the interactions between the two. The basis of these ideas is in the Greek origins of the word which can be assumed to lend the English language both the word *Paediatrics* - the science of 'child' medicine, or, from similar origins, *Podiatry*, the science of feet. Conflating these two definitions, renders the useful descriptor of pedagogy as the walking of a child out of ignorance and into new knowledge.

**Andragogy** - The same dictionary (Hanks, 1989) has no entry for this term interestingly. Knowles, the scholar most frequently acknowledged to be the architect of this term, promulgated it first in 1978 (Knowles, 1978). Dictionary.com has this for its entry, "the methods or techniques used to teach adults"<sup>38</sup>. Again, to extrapolate from this simple definition I would add

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<sup>38</sup> See <http://dictionary.reference.com/browse/andragogy?s=t>

the following: On the assumption that embedded within the definition of Pedagogy is the notion of a child, it is clear that in Andragogy it is *man* who is being studied or doing the studying, again from the Greek. Users of this term generally apply it in contexts where it is *adult* learning that is in focus. In the 21st Century 'andragogy', though derived from the Greek word for man or 'other person', also includes women.

Differentiated use of the terms comes about because of the recognition that adult learning may require particular or specific approaches and needs to be cognisant of the additional concerns around 'power-in-relation' (Foucault, 1982), gender, ethnicity, inclusion and the psychological constructs under which the learning may be taking place. It is important to dwell on this for a while since all of the learning I have undergone in relation to this project has occurred when I was, at least in British legal terms, an adult. Here is what Lynch has to say about adult learning - I have annotated her quotation using the 'N' signifiers to point out the serendipitous nature of her work:

- "Adults tend to be self-directing [N<sub>1</sub>]
- Adults have a rich reservoir of experience that can serve as a resource for learning [N<sub>2</sub>]
- Since adults' readiness to learn is frequently affected by their need [N<sub>1</sub>] to know or do something, they tend to have a life-, task-, or problem-centred orientation to learning as opposed to a subject-matter orientation
- Adults are generally motivated to learn by internal or intrinsic factors (such as helping their child with homework) as opposed to external or extrinsic forces (such as a raise in salary) [N<sub>1</sub>]" (Lynch 2002 p. 2)

Facilitating adult learning is challenging when the motivation is extrinsic as in a formal learning context. Writing from an international perspective, Marrett and Harvey (2001) note,

"They did not seem to grasp the need for taking personal responsibility for their own learning, using the materials provided and whatever other resources might be available to them in their own countries. They still expected to be "taught" and were upset when the local tutors did not lecture or deliver the entire course to them." (Marrett and Harvey, 2001 p. 44)



This resonates with my experience of working in Malaysia with HE tutors preparing to deliver a UK model of teacher education and where I had been asked to 'train' them on the use of Blackboard. One anecdote, makes the point:

### **Vignette 3: Constructivism in Malaysia**

"Ah Mr. Simon! I am looking forward very much to your CPD lecture this afternoon.'  
[Me] 'Well it's not really a lecture, more like a workshop where you will be learning in a hands-on context'  
'Yes, yes! Very good, we like the way you lecture on constructivism!'"

And as if to prove the point, here is a photo of me literally and ironically delivering a lecture on constructivism with the participants arranged in traditional classroom style.



**Figure 11: A Lecture on Constructivism...**

Marrett and Harvey (2001) attempt to account for this phenomenon. They write,

"These reactions may have been a holdover from the school system based on a pedagogical model (teaching children) through which they had passed. The transition to an andragogical model (helping adults learn, Knowles et. al. 1998) is not always easy."  
(Marrett and Harvey, 2001 *ibid*)

Perhaps the advent of more and more online opportunities for adult learning have given rise to the expansion of writing about adult learning facilitation. In short, there are more people doing it because they can.

The literature cited in the domain of educational technology so far, and below, is uncompromising on the assumption that computers are a powerful tool for facilitating just this sort of learning.

"Course evaluation studies... typically find that students do at least as well in online courses as in traditional classes. Students consistently show higher levels of involvement in online courses, likely due to the increased interaction with their instructors and fellow students via email and conferencing. Some students do prefer traditional classes, and this preference may result in poorer performance if they are required to take an online course. It seems, however, that most students like online courses." (Kearsley, 2000 p. 50)

"The communication capabilities of the Internet provide us with the opportunity to help create the kind of educational environment we want for tomorrow's students" (Lynch, 2002 p.2)

"Human use of computing is vast and growing. Networked technologies such as the Internet and the World Wide Web have been called 'transformational' because of their wide-ranging impact. Electronic networking creates communications across terrestrial boundaries, across cultures and on a global scale. Concepts of space and time are changing, and of how and with whom people can collaborate, discover communities, explore resources and ideas and learn." (Salmon, 2000 p. viii)

Dr. Pithamber Polsani (2002) of the University of Arizona would argue that to limit 'it'<sup>39</sup> to this alone - i.e. a tool - would be the equivalent of using a wheel barrow to protect your head from rain whilst working in the fields. A wheelbarrow makes a good *parapluie* or *parasol* and enables the user to work sheltered for longer periods of time. Take it off your head however, use its power to shift produce and increase productivity and the investment in it begins to show far greater returns. Similarly, technology is not, he argues, just a tool of education, it is the educator of the future itself. This notion is extended and enriched in the work of many educational

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<sup>39</sup> IT in the sense of Information Technology. The inclusion of the C was very important to add value to that which was already known about.

technologists who argue that the purpose of educational technology is to participate in the process of knowledge-construction.

"Online learning may get students excited about learning who otherwise would drop out of school" (Kearsley, 2000 p. 141)

Sadly, however, the literature is beginning to show that education as a project is not keeping pace with technological developments in ways that are liberating and enabling. Naughton (2011) notes,

"The current curriculum undermines the authority of the education system by revealing to tech-savvy children how antediluvian it is.

But more importantly, the curriculum is disabling rather than enabling for most kids, because it is preparing them for a technological world that is vanishing before their eyes. Training children to use Microsoft Office is the contemporary equivalent of the touch-typing courses that secretarial colleges used to run for girls in the 1940s and 1950s - useful for a limited role in the workplace, perhaps, but not much good for life in the modern world." (Naughton, 2011 p. 2)

There are now adults who have grown up with technology and who wish to use it extensively and effectively in their facilitation of learning. Curricula for teacher training in ICT must also become now, fit for purpose, and modelled on the best principles of andragogic practice.

### 2.3.3: Technology as a liberator

I want to argue here that technology has become a force for educational liberation. My starting point is Gutierrez's (1971) notion of 'organic intellectuals' (see 3.1.4 for a more detailed explanation of this term) which derives from his reading of Gramsci (1971). For me, there was a happy conflation of marxist ideology (where I was politically as a student) with Christian activism (where I was theologically and spiritually) wrought by the *Theology of Liberation* (Gutierrez, 1971). Much of my early professional identity as a teacher was constructed around 'freeing young people from the captivity of ignorance', 'inculcating values of justice and freedom in the hearts and minds of young people', 'extending the invitation to participate in charity and activism'. I wanted the pupils I taught to think for themselves, make their own judgements, develop values and, break through the glass ceilings of privilege, power and prestige in ethical, informed and intelligent ways. It was an identity forged in idealism. There remains for me a symbiotic relationship between education and liberation.

There is an increasing body of literature that documents the involvement in and influence of technologies on contemporary social and political movements, all of which themselves spring from sets of ideals.

"... many new social media tools have inbuilt features which make them easy to appropriate for political ends. The group and personal profile pages of social network sites such as Facebook offer a new space where people can share dissenting views and exchange information when planning demonstrations; a modern reworking of the traditional 'public sphere'. Blogs, such as tortureinegypt.net, have proved effective in documenting injustice and brutalisation over long periods of time, and have provided a lens through which to focus and direct public anger. Other tools, such as Twitter, enable the very fast dissemination of news." (Nash, 2011 p. 2)

Though not an illustrative moment as such and therefore outside the remit of this thesis but tangentially convenient, the following anecdote rehearses another moment where liberation and freedom were wrought at the intersection of self and technology - not, in this case, myself.

It was at a conference in Oxford that I heard the head of a Rape Crisis Centre talking powerfully about how the mobile phone given to her had saved her life. As her violent partner attacked and beat her senseless she was able to speed dial the panic line at her local police station. As a result he was apprehended at the scene, charged, tried and convicted. Simultaneously, the emergency services got aid to her and she survived to tell the tale. For me this was a profound learning moment and prompted me to reflect further on the potential contribution of technology to moments of liberation and education.

Less stark but more directly relevant to the present project is the story told by Usman (2001) of the nomadic women of Nigeria using radios to access broadcast education programmes which enabled them to learn and develop out of the circumstances of relatively dire poverty:

"Most radio education programs emphasize certain aspects of nomadic work roles such as prevention of certain animal diseases. To educate the nomads, the broadcasts were designed not only to be heard, but also to stimulate reflection and reaction in the Fulbe [the particular group in question]. Thus their general awareness of events around them would be awakened, and they would be able to participate fully in their education because the broadcasts would bring knowledge of areas that affected their daily life" (Usman, 2001 p. 95)

Legend has it that the modem was invented by the African National Congress as a means of encoding Mandela's speeches that he wrote in Robben Island, the prison that he famously re-cast as a university. It was also used as his means of staying in touch with the outside world.

"Using a laptop computer and modem, Maharaj was able to open new and direct lines of communication between South Africa and the ANC in exile. Maharaj obtained the full Mandela memorandum and showed it to UDF leaders in Johannesburg and to Mbeki in Port Elizabeth. 'When they saw the full text of the letter they realised they had misread Mandela's intentions. Within days we were able to sort the matter out. I sent a message to Mandela explaining how the trouble had arisen. He promptly sent invitations to Govan Mbeki and the others involved to come and see him'" (Seekings, 2000 p. 243).

As suggested in section 2.3.1, I want to adopt the phrase I first encountered in the work of Andy Law, when he chooses to describe phones and computers as 'liberation technology' (Law 2001 p.165). The obvious connection to liberation theology whose hermeneutic principles are important for this study, hardly needs spelling out. Law goes on to say,

"Through the gift of microprocessors, computers (and many other domestic and business goods) get better and cheaper, thereby defeating our preconceived notions that better things are more expensive. They serve us well and add value to what we do, but in themselves are too readily obsolete." (Law, 2001 p.166)

In this next quotation, some pointers are offered to the potential impact of computers on the human condition.

"At St. Luke's<sup>40</sup> technology is a great leveller. Beyond the skill of programming, the use of computers is a fair and democratic process. That's good, because it means that work's greatest enabler is available to any and every human, regardless of who they might be." (Law, 2001 p.168)

Friedman makes an important contribution to this debate, celebrating the work of the 'Open Source' movement. He writes, "The primary goal of the free software movement is to get as many people as possible writing, improving and distributing software for free, out of a conviction that this will empower everyone and free individuals from the grip of global corporations" (Friedman, 2006 p. 106). He writes powerfully about the impact of Google Earth on the small nation state of Bahrain, and its capacity to metaphorically breakdown the walls imposed on the population by the ruling elite (Friedman, 2006 pp. 506-507).

As a prologue to his historical report on Facebook, Kirkpatrick rehearses the story of Immanuel which again illustrates the power of technology to liberate and educate (see Kirkpatrick, 2010 pp. 1-7).

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<sup>40</sup> Andy Law's own advertising agency.

From the abstract to the directly relevant, it is necessary to cite the work of Naughton (2000, 2004 and 2011) again. In this quotation it is important to note the interlocation of technology with liberation/freedom and education:

"What the tech resistance movement shows is that there is an alternative to the national curriculum in ICT. Instead of laying the dead hand of key stages 1-4 on our children, we could be opening their minds to the disruptive and creative possibilities of computing and networking, reversing the decline in entrants to computer science departments and - who knows? - even seeding the development of the ARMs of the future." (Naughton, 2011 p. 3)

For clarity, the 'tech resistance' movement is the grassroots 'lack' of organisation that seeks to use technology to liberate young minds to 'tinker'. The kind of tinkering that led to the founding of ARM, a global intellectual property licensing company, based in Cambridge, England that invented, developed and licensed the base technology that powers all the world's mobile phones<sup>41</sup>. The parallels with Law's writing could not be more clear. Moreover, in Salmon's work, based almost exclusively on research undertaken in andragogical online contexts, it is clearly stated that,

"At stage five [Development], participants become responsible for their own learning through computer-mediated opportunities and need little support beyond that already available. Rather different skills come into play at this stage. There are those of critical thinking and the ability to challenge the 'givens'." (Salmon, 2000 p.35)

In my experience, this is precisely because they have been trained to think for themselves in a constructivist environment, which whilst still providing a scaffold, also creates the conditions where thinking is possible and happens organically.

Strategically there are those that argue that ICT has a formal role to play in the development and liberation of peoples as yet struggling to access resources for living as well as higher levels of need like participation in democratic processes:

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<sup>41</sup> ARM was featured on a BBC programme, *Made in Britain* and hosted by Evan Davis of the BBC. Further information about the influence of ARM can be found here: <http://www.v3.co.uk/v3-uk/the-frontline-blog/2082317/arm-showcased-british-innovation> Accessed 29th June 2011

"Many of the promises of ICT, like those of lifelong learning, come couched in the language of access and equity, appealing both to social justice and to efficiency. On its own, this gives us no reason for rejecting the promises as false or misleading. Information technology clearly does have the capacity under appropriate circumstances to reach large numbers of learners through a few well-qualified teachers using materials developed by specialists. In places where both books and qualified teachers are scarce, ICT may indeed have the capacity to provide learning resources where there are none." (Lelliott, Pendlebury and Enslin, 2000 p. 48)

Lelliott et. al. (2000) were writing out of the context of facilitating learning on the continent of Africa but their insight is transferable to the UK context. There are some important words in this passage: 'access', 'equity', 'justice' as words related to liberation or freedom; 'capacity', 'well-qualified', 'specialist' as words related to education and learning.

Resonances with Polsani's notion of technology as the teacher of the future (see above), Law's notion of liberation technology and the general understanding of education as a means of achieving freedom, if only from ignorance, make this an important quotation in the context of this study. Goodson and Mangan note however, "that people have different levels of access to information, and different levels of awareness regarding its formulation and distribution" (Goodson and Mangan, 1991 p.13). This means that control can be exerted over subordinates because they simply 'do not know'. Liberating the means of 'knowing' and freeing access to the sources of knowledge is actually an act, therefore, of moral heroism and revolution. As has been shown, technology can do this. Halpin converts this aspirational understanding of the power of ICT in educational terms into a more urgent imperative to change. Since ICT has been a catalyst of social revolution, he argues, curricula need to evolve to keep pace:

"...the nature of modern society, in particular the most significant social revolutions presently underway within it which are radically reconfiguring how life is currently experienced and lived, and which I now want to insist demand a fresh curricular response from schools. (Halpin 2003 p. 106)



In essence it appears as if Halpin is arguing that technology is both the problem and the solution. I would concur with this entirely. Technology has, as shown above, both facilitated and contributed to a range of social revolutions or revolutionary and liberating phenomena.

This thesis is the story of the impacts of such phenomena in career terms, something akin to the 'evolutionary burst of activity' accounted for in complexity theory. I saw it happening with pupils I was teaching and see it now in the liberating processes going on round the world<sup>42</sup>. If Halpin is right about the need for '... a fresh curricular response from schools,' (Halpin 2003 *ibid*) it may also be true in the context of professional learning.

The work of Anspear Ltd., was referred to earlier and is a powerful example of how learning, technology and liberation have come together. Research and development projects for the literacy, numeracy and British Citizenship 'test' support materials have been undertaken with the following hitherto marginalised groups: Young offenders working on a summer school on the Anglo-Welsh border; Bangladeshi women accessed via a community hub in Tower Hamlets; Former Gurkhas in Ashford, Kent identified by the Ethnic Minority Achievement team from the County Council and a large community of Gypsy, Roma and Travellers temporarily resident in Swaleside, Kent. In each case, the tool was adapted to meet a defined 'need' in the community: Access to better quality health care; access to the English curriculum; access to knowledge; participation in learning in general and so on.

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<sup>42</sup> There has been a fascinating series of debates about the uses or abuses of Blackberry Messenger by the so-called 'rioters' during the outbreak of disturbances in English cities in the summer of 2011 (see e.g. <http://crave.cnet.co.uk/mobiles/blackberry-messenger-shutdown-rumour-spreads-in-london-riots-50004663/>). The hash tag @riotscleanup became a locus for the alternative response to the trouble. Again, both sides in evidence of the technology coin.

The feedback from these commercially-oriented research and development projects has demonstrated that liberation from ignorance, exclusion, isolation and incarceration is achievable, in part, with learning mediated by technology.

My 'self' has, I would argue, been liberated periodically by learning mediated by technology.

This has been most frequently the case in professional contexts, hence the reason for limiting the illustrative moments to those in my career. Literature, therefore, that can be said to focus on the impact of technology on professional learning is the next section, thereby amounting to a summation of this whole review.

## **2.4: Liberation technology and professional learning - the Addendum**

Originally the literature review was going to focus on the three domains, epistemology, self and technology, but the inclusion of this additional section was agreed to be necessary in a dialogic process with the supervisory team. Its intention is to locate the work in the domain of professional learning in education since it is my professional learning that is the subject and object of the study.

At the outset, I wish to state clearly two important parameters for this section. First, this is about one professional community only – the education profession - , so health and social care, medical, legal, law and order, military, musical, guidance and careers professionals, and their situated contexts, are not discussed even though there may be resonance between and across the domains. Second, this is about professionals and not practitioners. At some point a paper needs to be written, which builds on the important work of Atkinson and Claxton et.al. (Atkinson and Claxton 2000 p. 4) that charts the progression from a mindset that constrains teachers to be reflective practitioners, to one that encourages them to be reflexive professionals. These two metaphorical descriptions require further explication.

Reflective practice, if operated without the appropriate theoretical wrapper, carries with it the danger of a backward-looking self-referential, concentrically circular workplace demise since a reflective practitioner may hold a mirror up to themselves but may do no more than take note of the two-dimensional image that comes back. I have witnessed this phenomenon in both initial teacher education and continuing professional development programmes. The real danger is solipsism, (Kirkham, 2003) reflection without action or even action without reflection. Either way round, learning does not occur.

Reflexive professionals, at the other end of a continuum and not just in binary opposition to reflective practitioners, alternatively act on the outcomes of a structured enquiry into themselves, their professional lives and their working practices. In so doing they bring forward positively a dialogic, hermeneutic process which prompts them to undergo structured, scaffolded, analytical processes, carried out in isolation but more effectively with the supplementation of a learned expert, a guru or, in educational terms, say, a 'coach' (See NCSL, leadership pathways methodology), or, in technology-mediated contexts a 'pedagogical agent'. In this *modus operandi*, account is taken of the many dimensions of a professional educator's life. It may be viewed by a 360° process, or it may be examined from different aspects, sides or perspectives (Natanson, 1970; Sokolowski, 2000; Grimmitt, 2000; Jackson, 2006). Where reflexive professionals differ significantly from reflective practitioners is in the mandatory development of action plans that arise from the reflexive process. These may be personal development plans as advocated by Covey (1989), they may be strategic action plans as advocated by national self-evaluation methodology (OFSTED, 2004) or they may be practical action plans that focus on an identified 'area for development' in a practical context.

"To begin with the 'end in mind' means to start with a clear understanding of your destination. It means to know where you're going so that you better understand where you are now and so that the steps you take are always in the right direction." (Covey 1989 p. 98)

## 2.5 Approaches to Professional Learning

The history of education points to the adoption for education of the concept of reflective practice in the work of Donald Schön (1987). The impact of his theory on the profession has been significant and has contributed to the elevation of it, away from models of instrumentalism that pertained in the 19th and early 20th Centuries (See Atkinson and Claxton 2000 pp 4-6). Schön argues that his work was set in a tradition that had evolved out of a positivist research construct which might have created lots of new knowledge but which paid little attention to the practical situations for which it was ‘intended’ – this term is used here in its phenomenological sense as well as in its standard meaning. Schön states,

“And so the separation of research and practice. And the consequence of this is, I believe, that if you find yourself in university, you find yourself in an institution built around an epistemology--technical rationality--which construes professional knowledge to consist in the application of science to the adjustment of means to ends, which leaves no room for artistry and no room for the kind of competence [...] that a reflective teacher displays when she responds to the puzzling things that kids say and do in the classroom. No room for these indeterminate zones of practice-uncertainty, situations of confusion and messiness where you don’t know what the problem is. No room for problem-setting which cannot be a technical problem because it’s required in order to solve a technical problem. No room for the unique case which doesn’t fit the books. No room for the conflicted case where the ends and values in what you’re doing are conflicted with one another. And so you can’t see the problem as one of adjusting means to ends because the ends conflict.” (Schön, 1987 p. 6)

At the time he was operating and developing his ideas, teachers were ‘trained’ to work in classrooms in university departments of education but even more attended lectures at teacher training colleges. The nomenclature of these institutions discloses the approach to be adopted in them. Looking back on the learning activities undertaken by my friends and peers in the teacher training college where I ‘took’ my first degree, and they ‘studied’ education, it is clear that they were being prepared for the technical operation of a ‘job’. The highlight for them was educational technology lectures where they got to learn how to use overhead projectors and the

‘banda’ duplicating machine. These two, at the time exciting technologies themselves, reveal, however, the underpinning pedagogic approach to be adopted: deontological, didactic and teacher-centred.

In the UK many of these teacher training institutions were established by religious foundations whose expressed intentions were to ‘form’ young men and women for their roles as inculcators of the pre-dominant social *mores* if not explicit Christian values:

“St Mary’s University College has a long and distinguished history as a Catholic college for the education of teachers. It was founded in 1850 by the Catholic Poor Schools Committee to meet the need for teachers to provide an education for the growing numbers of poor Catholic children. It started in Brook Green in Hammersmith in the charge of the Brothers of Christian Instruction with an intake of twelve young men.” (St. Mary’s University College, 2007)

“Canterbury Christ Church College was the first teacher training college established by the Church of England in the twentieth century. It was founded in 1962 particularly to meet the needs of Church schools at a time of an acute teacher shortage. (CCCU, 2007)

Noteworthy in the first quotation is the use of the term ‘instruction’ which signifies also the pedagogic method employed by these ‘educators’. If this was the case for beginning teachers, student teachers or trainees, how much more true was it of in-service training? I qualified in 1985 and was occasionally sent on a course – to learn how to do something - in the first three years of my career.

Professional development and training did, however, undergo something of a radical shift during the period of time when the Secretary of State for Education in the UK was Sir Kenneth Baker. It was decreed, as an axiom of the 1988 Education Reform Act, that all teachers would be required to undertake five days of training per year, taken out of the holiday allowance. The

correlation between the promulgation of Schön's theory and the establishment of 'Baker Days', is not attested to in the literature, rather the Conservative government's perception of the need for the 'upskilling' of the education workforce is seen as the principal driver behind this innovation. This approach was symptomatic of the technicist-rationalist mindset of that particular government (Grimmitt, 2000 p. 7; Atkinson and Claxton, 2000 p.17). It insisted that teachers required greater 'know-how' (Furlong, 2000 p.17), irrespective of questions of 'know-what' or 'know-why'. John Fletcher reports that during this period:

"Teachers were publicly relegated to technician status in a number of ways, reduced to mere agents delivering policies that had been originated elsewhere. They were undermined indirectly by the discrediting of the initial preparation that they had received (Joseph, 1983<sup>43</sup>). Teacher 'training' replaced teacher 'education': it became customary to refer to a teaching 'force' not a teaching 'profession'". (Fletcher, 1995 p. 141)

Fletcher goes on to illustrate the 'instrumentalist' underpinnings of the raft of INSET measures that emerged from this reform of education, all of which were aimed, not about personal development for teachers but, improvements in performance by pupils (Fletcher, 1995 p.143).

The consequent de-professionalisation of teachers is reminiscent of that noted by Schön in the 1950s in the US when, the need to counter 'communism' and 'sputnik' were the policy drivers (Schön, 1987) or in the 1980s, when the perceived threat was from Japan and the rest of the pacific-rim economies (Schön, 1987 *ibid*). It was these kind of drivers that led Woodhead, as Her Majesty's, then, Chief Inspector of Schools to endorse the findings of Reynolds' research into whole class teaching of literacy which he had elicited from studies of literacy learning in Taiwan (Reynolds, 1998). This became an orthodoxy which spawned an industry known better as, The National Strategies (for numeracy and literacy teaching). Such pedagogic strategies - even instructional methods, to use the American terminology - moved away from the post-

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<sup>43</sup> A reference to Sir Keith Joseph the, then, Secretary of State for Education.

Plowden, child-centred, post-Vygotskian, constructivist learning management techniques that had become pervasive in the vast majority of England's primary schools. Teachers were 'trained' to deliver the strategies in an unashamedly didactic manner.

History will show that this approach was unpopular with teachers. It was ideologically-driven, it was theoretically-thin (one sponsored, research paper from Reynolds (1998), see above) and was out-of-step with the research-informed insights of the CPD community in England.

Refreshingly and reassuringly the TDA had listened carefully to these CPD experts and produced a policy document which enshrines pervasive ideas in teacher education which are more in keeping with contemporary research-informed evidence and theory (TDA, 2007). A standout bullet point in the present context is this:

“It [CPD] enables the participants to develop skills, knowledge and understanding which will be practical, relevant and applicable to their current role or career aspiration – for example, in curriculum or subject content, teaching and learning strategies and the uses of technology.

CPD is only effective when it is directly relevant to each participant. Where CPD is provided for large groups, or for the whole staff, it may be useful to separate the participants into smaller groups so the CPD can be customised to suit each type of participant.” (TDA, 2007 p.2)

What is presented here, largely on the basis of synthetic insights arising from EPPI reviews (<http://eppi.ioe.ac.uk/cms/>), is a model of CPD that is personalised, focused, ambition-oriented and with the professional learner at the centre of their own journey. It notes also the lack of value added to teachers' professional learning by whole staff INSET that is often described as 'airport anthropology', 'seagull strategy' or 'hit and run training'. Accounted for implicitly in these quotations is the notion of self-directed learning.



The key point to be made here is that in my reflections on the learning gains I have made as a professional, technology has been an integral component, usually as both the cause and agent of change. Professional learning has been mediated by technology. Two simple illustrations help make the point. They are chosen because they don't necessarily fit the pattern of the five IMs that are the main research objects for the study but they are nonetheless indicative of the relationship between technology and learning in my autobiography. In these cases, however, the obverse effect is to be noted. In other words these were bits of technology I learnt outside the professional domain but which I have subsequently applied in that domain with, as indicated, career enhancement outcomes.

#### **Vignette 4. NCO and PHP**

In December 2008 I began a period of volunteering for the National Children's Orchestra . Among other roles, I took on responsibility for managing their website [www.nco.org.uk](http://www.nco.org.uk). All I was given was a phone number of the original parent volunteer who had the access codes to the back end database and the log in details for the mail server. It quickly became apparent that the site was coded in four different scripting languages, was based on an open source solution that I had never seen before and operated an 'htdocs' methodology which meant I could find no actual text to edit. By re-visiting a number of logical processes I had developed over time (see below for reference to Gladwell's notion in *Blink* (Gladwell, 2006)) and with the accumulated experience of working with technologies as well as making use of the phone number, I managed to learn fast enough and fully enough to keep the site fresh. At the end of the process I had acquired skills in open source content management, php5 and MySQL. When I came to set up my own *moodle* (vle) in the summer of 2011 for commercial uses, I was able to deploy many of the skills acquired at that time. Moreover, I became free from the need to use Microsoft products as standard.

#### **Vignette 5. From Home Movies to Teacher's TV**

In the summer of 2007, it became necessary to extend the range of handheld video cameras we had available as a family. Staying loyal to the Sony brand, I bought a camera which captured video direct to DVD. There was familiarity with the controls and the leads that came with it but there was no obvious way of getting the movies to play on a standard DVD player. This caused me to enter a new process of self-directed learning, from which I acquired new skills (creating DVD menus and playlists, burning DVDs etc.), new language (rendering, compressing, finalising etc.) and new needs (for example, it soon became apparent that the processing power of

my home PC was not sufficient to cope with the resource requirements of video-editing). It is a fact of history that that new knowledge was applied on the RE-Net project when we produced a range of talking heads of the great and good in RE as a resources for tutors new to RE to use in their sessions in initial teacher education work<sup>44</sup>. This, of course, meant that we were free from the need to pay for professional film companies to make usable quality movies available online. It was also invaluable experience when I came to apply the editing principles and processes to Teacher's TV programmes.

The above illustrations provide uncorroborated evidence that technology had a liberating effect on aspects of my career. I certainly felt enhancements to my cognitive self as I was able to do things I could not do before. I knew things, I hadn't known previously but I was also motivated to acquire such knowledge, skills and understanding which made the process that bit more satisfying.

It is my contention that professional learning should be a liberating process. I think there is support for this assertion in this extract from Whitehead and McNiff':

"...the video showed him actively denying the values underpinning his ontological commitments to creative independent investigation, because he saw himself imposing his own ideas on his students and telling them what to do and think, rather than encouraging them to find out things for themselves and explore their own ideas.[...] over the last thirty years, Jack has systematically worked at improving his practice of enquiry learning by responding to people in a way that will encourage them to have faith in their own capacities to create their own knowledge." (Whitehead and McNiff, 2006 p. 26)

In my epistemological tradition (i.e. theology and philosophy as shown in chapter 2.1), the acquisition of new knowledge, skills, understanding, wisdom, expertise or experience is the equivalent of 'emancipation from mental slavery' (after Bob Marley *Redemption Song*, Island Records, 1980). The next line of Marley's song is, "...None but ourselves can free our minds" (Marley, 1980 *ibid*). In modern parlance, Marley is arguing that we should 'back ourselves'; Whitehead and McNiff would articulate this as 'having faith in our own capacities to create our

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<sup>44</sup> Some of those resources are now being made available through Facebook, though they are hosted on my own webspace ([http://www.fernbankassociates.co.uk/re\\_net\\_legacy.htm](http://www.fernbankassociates.co.uk/re_net_legacy.htm)).

own knowledge'. Frequently now I would opt to back myself and create my own knowledge using the knowledge acquisition methods that have evolved over time. This is certainly the case when it comes to learning a new technology. Did I enrol in a class to learn how to tweet? No, I downloaded the software and got on with it. Did I purchase a textbook to learn how to use an interactive whiteboard? No, I found an empty classroom, plugged in a notebook with the Smart tools pre-installed and got on with it. Did I go to a tutor and ask to be trained in scripting PHP? No, I called the helpdesk at claranet ([www.claranet.co.uk](http://www.claranet.co.uk)) and happened upon an enthusiastic engineer, bored with his day job who clearly enjoyed the rare opportunity to act as an andragogical agent.

In the context of my own career, what seems to be occurring therefore is a kind of '*autopedagogy*' where professional challenges and subsequent reflections on these phenomena have led me to undertake self-directed study. It may even be that '*autopedagogy*' is a phenomenon in its own right. On lighting on this term, I experienced a moment of euphoria. I, then, discovered that it is used in America in the context of driving schools. It occurred to me that in the same way that I am not writing an autobiography, but am engaging in auto/biographic activity, it would be more appropriate to adopt the term auto/pedagogy as the shorthand descriptor for the phenomenon. This is because I am starting to see that over twenty years, I have been engaging in self-directed, professional learning episodes where it has been necessary to engage in reflexive processes relating to them. To be clear I do not intend to use an auto/pedagogic research methodology to create theory about auto/pedagogy; rather I am using an auto/biographic method to build a theory of auto/pedagogy.

In section 2.6, I set out further what auto/pedagogy seems to be. If the hypothesis is accepted, it is intended to explore this by a research methodology which is set out in chapter 3 and written up in chapter 4.

## 2.6: Auto/pedagogy

### An Emerging Framework

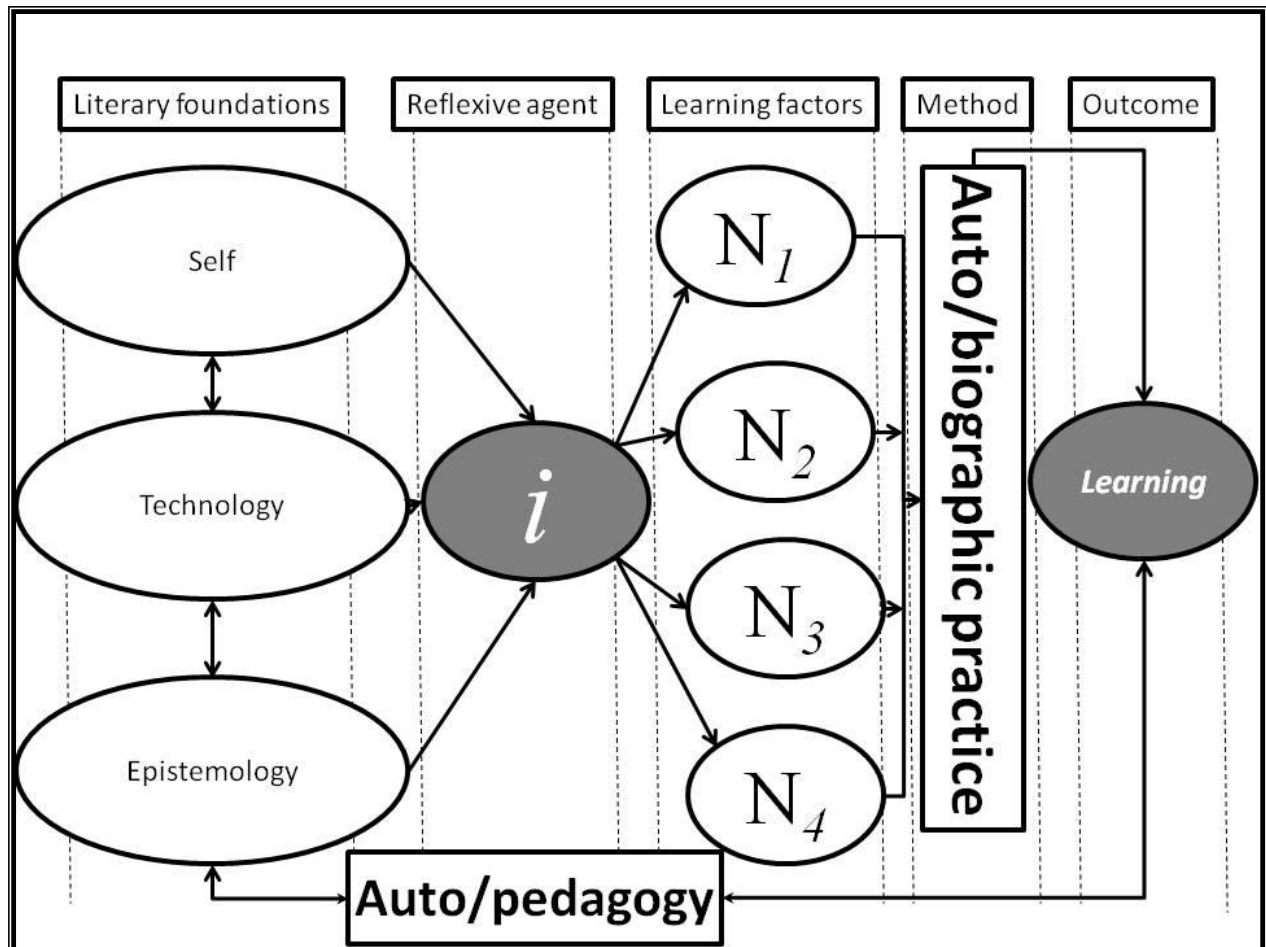


Figure 12: Auto/pedagogy

The diagram above seeks to set out in diagrammatic form, the process of auto/pedagogy as I intend others to understand it. In effect, what I have created is a snapshot of the doctoral process that underpins the thesis.

In keeping with Western approaches to reading, most people will start on the left and work in a rightwards direction. That is how the process started for me with an immersion in three discreet bodies of literature: writing about the self; writing about technology and prior readings and understanding of the literature in the domain of philosophy that deals with epistemology.

Clearly it is myself that has elected to read in these domains and to review them reflexively. In fairness, I have adopted the term 'reflexive' as the study progressed since it is the conversion of

reading into action that has been instrumental in moving the thesis forward. In keeping with the underlying theme of the thesis and in homage to the 'i' in *itunes* which is an underlying metaphor for the study, I have chosen to use the italicised 'i' to represent I in the diagram. I as in myself.

This is supposed to denote that I am the main agent in the framework, though that is not to say that others would be the 'i' in their own auto/pedagogic activity. It is the 'i' that is pivotal in the diagram. As can be seen, the outcome of reflection on the literature was the emergence of the theoretical framework, and now I am unable to read anything from either of these domains without classifying it against one or more of the learning factors. As explored towards the end of chapter 2, these 'N's are code for the four factors of the framework that seem to underpin auto/pedagogic activity: N<sub>1</sub> for need; N<sub>2</sub> for knowledge; N<sub>3</sub> for network and N<sub>4</sub> for new. As can be seen it is in the combination of these that the framework starts to emerge.

In order to demonstrate the provenance of the phenomenon, it seems helpful to present the history of its evolution and etymology. Ultimately, the concept is traceable back to later interpreters of the phenomenological tradition (see Russell, 2007; Silverman, 2002) and thus has its origins in approaches to research and truth deriving from that philosophical school.

In section 2.5, I described auto/pedagogy as a phenomenon in its own right. At an earlier stage of this process I wondered if the original contribution to knowledge might be the 'discovery' and definition of this new approach to learning. That might have led to the setting of an overarching frame for the study. This is because my hypothesis is that my own auto/pedagogic activity (mapped against that framework) is potentially illuminative for others attempting to make sense of the 'space' between their own personal or professional contexts and the epistemological tools they might employ for self-improvement. I see now that it is perhaps more important to use a

more established method to explore this phenomenon itself, hence the retreat from the creation of a new methodology, auto/pedagogic research, to an auto/biographical analysis of some phenomena that might support the proposition of what, for the moment, remains a hypothetical way of learning.

Auto/pedagogy, as an epistemological tool, is thus a deliberate attempt to validate claims to professional learning caused by the participation of the ‘self’ in a systematic analysis of its own narrative, in order to discern potential and possibly patterns and processes therein. The epistemological scaffold for this study can be seen to comprise, therefore: personal knowledge (Polanyi, 1962) acquired through active participation in thought experiments (Taylor, 1984; Swann & Pratt, 2003 p. 21), which attempt to make sense of phenomena (Natanson, 1970) occurring in one’s autobiography (Abbs, 1974).

What follows is an account of the research I undertook to establish whether or not this hypothetical framework has meaning in the context of professional learning.

## Chapter 3: The Research Methodology

### 3.0 - A Summary Description

The research methodology of this study is non-standard and unconventional. It is a personal case study (Yin, 2003; Travers, 2002); a rigorously-analysed lived account (West, 2004; McNiff, 2007). It is, thus, relativist (Cohen, Manion and Morrison, 2005), eclectic and sits within the developing auto/biographical tradition (West and Carlson, 2007, Reid, 2008). The epistemological theory that I developed over the time of the study inclined me to believe that insights leading to new knowledge and therefore understanding, would best be derived from an auto/biographical reflexive process which examined analytically a number of illustrative moments from my career narrative. So, I used the following methods:

- I created a rationale for selecting such illustrative moments and discounted other critical incidents<sup>45</sup> that might have served the project equally well;
- I recorded theoretically-imbued narrative accounts of the five illustrative moments (appendices 2-6);
- I reviewed each of the illustrative moments against the emerging theoretical framework;
- I developed the theoretical framework concept by concept drawing analytically on the narratives for further insight and understanding;
- I tagged by colour-coding the appearance of each of the Ns in the narratives to see if indeed each was present;
- and then attempted to synthesise the learning achieved by reflecting again on IM3 which has turned out to be the pivotal IM of the study.

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<sup>45</sup> Later in this chapter I articulate the reasons why I did not adopt the term critical incidents preferring something more tentative and less symbolically boundaried by time.



## **Reflexivity and dialogics**

In keeping with the auto/biographical method, at each stage of the process, I attempted to illuminate the narratives from relevant literature. This is a dialogical process similar to the 'hermeneutic circle' I adopted from undergraduate theological studies in the 1980s (e.g. Gutierrez, 1971), where human experience is excavated for meaning through scriptural study and the scriptures themselves are evaluated in the light of new experiences facing the human condition - this was seen earlier in Taylor's (1984) post-modern approach to theology also. In the same way that there is a canon of scriptures in Christian theology, most notable of which are the Gospels, there is a canon of quasi-sacred literature in education. Examples of this might be Bloom's *Taxonomy* (1954), Plowden's report (1967) or Vygotsky's (1978) *Mind in Society*. So, too, there are texts in the canon of educational technology literature whose names are uttered in hushed, appropriately reverential terms: *Computers and the Human Spirit* (Turkle, 1990) *Mindstorms* (Papert, 1993), *Computers in Education* (Collis, 1996), *E-Moderating* (Salmon, 2000). I have chosen not, therefore, to attenuate my use of the term, "scriptures", when referring to readings around the illustrative moments that form the research objects for this study. Such an approach derives from my ontological stance and selfhood and is validated by Wilde's (2012) reflections on his moment of profound learning, cited above.

## **Research Question**

To explore the hypothesis, that there is a framework which contributes to profound professional learning experiences mediated by technology, I developed the following question:

- What can reflexive analysis of a personal narrative indicate about the nature of professional learning mediated by technology?

What I am trying to discover is a theoretical framework for professional learning that might be useful for others in analogous situations. The thesis has become, therefore, as indicated tentatively above, an example of what Whitehead and McNiff (2006) term, 'living theory'. The nature of that theory and the way it is structured are explored fully in chapter 4.

There are some subsidiary questions which are also explored through the research:

- What might be the characteristics of such a framework?
- Is the term 'auto/pedagogy' an appropriate shorthand descriptor for such a framework, should its existence be discernible?
- What are the necessary conditions for auto/pedagogy to occur?

The auto/biographic method I intend to employ derives from the fact that this hypothesis has emerged in the story of my career so far. Thus, an auto/biographic approach to the development of a living theory.

For a long time I resisted the impetus to set this piece of work in the continuum of methodologies coded 'action research'. This was because I rather pompously believed myself to be a philosopher rather than a practitioner. On reading Whitehead and McNiff (2006) more carefully and with greater criticality, I now subscribe to their insight which is that practitioners can, under certain conditions (see below), generate new theory by their participation in structured research of their own professional context:

“These theories are living in the sense that they are our theories of practice generated from within living practices, our present best thinking that incorporates yesterday into today, and which holds tomorrow already within itself.” (Whitehead and McNiff, 2006 p. 2)

The illustrative moments that form the research objects for this study are selected from 'yesterday' because they contribute to my understanding of 'today' and suggest ways in which

‘tomorrow’ might be designed for others in analogous situations. They are undoubtedly drawn from my professional practice and reflection on them is incontrovertibly a form of action research. In studying the theory of ‘living theory’, I was particularly struck by the words of Daisy Walsh, cited by Whitehead and McNiff,

“By putting the work of my dissertation in the public domain, I hope that other team leaders in a similar vocational education context can relate in part to some of my experiences.” (Walsh, 2004 in Whitehead and McNiff, 2006 p. 20)

This is redolent of West’s (2004) observation that has been an ever-present influence on my thinking and reflections on this project:

“...validity primarily lies in the meaningfulness of the analysis to other sense-making practitioners wrestling with similar questions, as well as the extent to which the interpretations illuminate the struggles of learners elsewhere, in analogous situations” (West, 2004 p.8).

My intention, then, is to report on the rigorous and structured reflections on the IMs in order that I might generate a living theory from my own auto/biography. This might then be useful for other practitioners and their own professional learning:

"In processes of data gathering, we say, the aim is to gather data primarily in terms of the study of oneself, in order to show progress in the growth of one’s own learning and how that learning can influence future learning and action.” (Whitehead and McNiff, 2006 p. 5)

My living theory is that each of the four factors or phenomena of this framework are necessary for a profound professional learning experience and that this is discernible in my auto/biography. To demonstrate this, I developed a four-stage process for the analysis of selected moments in that story, hence the adoption of the IMs. Stage 1 is the theoretically-imbued inscription of the IMs as they emerged from my memory. Stage 2 is an analytical reflection on each IM for what it reveals about what I learned at the time and the meaning I have derived from it since. Metaphorically this is a vertical investigation which goes deeper and into more of the detail of the narrative. Stage 3 of the process is a reflexive analysis on the emerging framework which

illustrates the contribution that each IM made to it. Metaphorically, this is an horizontal analysis of the IMs, which seeks to show patterns and replications from one to the other as a way of articulating the component strands of that framework. For ease of reading the framework is offered here, in tabular form, for the first time:

**Table 1: The Emerging Framework**

Factor	Description	Code
1.	A self notes that it has a self-referential reason for study,	N for Need
2.	The self utilises its prior knowledge, skills or understanding to access appropriate digital learning resources	N for kNowledge
3.	The self actively participates technologically in the social co-construction of meaning through focused and relevant communities of practical or professional enquiry (after Wenger, 1998; 2001 – see Smith, 2003)	N for Network
4.	The self critically evaluates these episodes and is able to apply new synthetic understandings in relevant practical or professional contexts.	N for New

How I arrived at this framework is the sub-text to all the work that follows. It is published here as a way of presenting the hypothesis, in the belief that the rest of the thesis is the story of how the framework evolved and how it is also the framework around which I structured the philosophical reflections.

Stage 4 of the research process is a synthetic analysis which draws together all the prior learning as a way of evincing the living theory that is generated by the undertaking of this rigorous enquiry.

### **The Layout of Chapter 3**

The chapter is thus in three parts: first, a structured analysis of how I arrived at the proposed methodology; second, a discussion of how this methodology is in keeping with the emerging

themes of the study and how it relates to the underlying epistemology and third, a narrative description of what I did.

### 3.1: The evolution of the proposed methodology

The interdisciplinarity or multi-disciplinarity (see Bridges, 2006) of this study has been helpful in providing a broad basis in relevant literature as was seen in chapter 2. It has also been a source of enduring debate since the work does not fit neatly into a specific discourse (see e.g. Foucault, 2007), research tradition (see e.g. Swann and Pratt, 2003) or paradigm (see e.g. Guba, 1990). As was seen in section 2.3, complexity theory seems to indicate that in the 21st Century this is inevitable since ideas, concepts, theories and methodologies overlap and interlock in a range of academic endeavours. Support for this notion is evident in the following quotation:

"In retrospect we know that the road that led from nineteenth century transportation was quite different. The invention of the automobile and the airplane did not come from a detailed study of how their predecessors such as horse drawn carriages worked or did not. Yet, this is the model for contemporary educational research. The standard paradigms for education research take the existing classroom or extra-curricular culture as the primary object of study. There are many studies concerning the poor notions of Math or Science students acquire from today's schooling. There is even a very prevalent "humanistic" argument that "good" pedagogy should take these poor ways of thinking as its starting point. It is easy to sympathise with a humane intent. Nevertheless I think that the strategy implies a commitment to preserving traditional systems." (Papert, 1993 p. 44)

When I make the connection from this quotation back to Waldrop's description of 'bursts of evolutionary creativity and massive extinction events' (Waldrop, 1993 p. 119), I find myself in agreement with Papert that education research needs to find creative ways of discovering emerging meaning and truth. This I believe to be particularly true when it comes to technologised learning since it will not necessarily help our understanding of the potential affordances of ICT to examine the pedagogical implications of, say, chalk. Further support for this new way of understanding study, research and theory can be seen here:

"One of the most essential features of the new history is probably this displacement of the discontinuous: its transference from the obstacle to the work itself; its integration into the discourse of the historian, where it no longer plays the role of an external condition that must be reduced, but that of a working concept; and therefore the inversion of signs by which it is no longer the negative of the historical reading (its underside, its failure, the limit of its power), but the positive element that determines its object and validates its analysis" (Foucault, 2007 p.10)

From these words I take validation for my approach since I see that it is in the very antithesis of planning, quantification and verifiability that meaning is derived from my reflections on those experiences which have catalysed my own professional learning. Twenty years ago, I did not set out to develop a longitudinal study of the effect of ICT on myself. I didn't document it, create an *oeuvre*, set down a text (after Foucault, 2007 pp 5-8) or move to a laboratory, but then, I didn't realise until later that I was involved in a thought experiment. This, then, is a necessarily retrospective research project where I am the 'work itself', edging towards a 'working concept' (Foucault, 2007 *ibid*).

Foucault's critique of contemporary epistemology is redolent of Papert's (see above) more pragmatic approach since he is quite clear that simply building on past knowledge, assimilated by conventional means will no longer suffice, since there are many discourses, many histories, many structures and many solutions, all of which may contribute meaning. He cites Bachelard as a key source here:

"There are the epistemological acts and thresholds described by Bachelard: They suspend the continuous accumulation of knowledge, interrupt its slow development, and force it to enter a new time, cut it off from its empirical origin and its original motivations, cleanse it of its imaginary complicities; they direct historical analysis away from the search for silent beginnings, and the never-ending tracing-back to the original precursors, towards the search for a new type of rationality and its various effects." (Foucault, 2007 p. 4)

I find this particularly interesting on reaching this point in my studies for two reasons: First, I did not learn how to use technology in ways consistent with my prior learning, so I had no understanding of the 'empirical origins' of, say, computer science and had not been involved in the 'continuous accumulation of knowledge'. Rather, I found myself in 1989 on the other side of a threshold that I wasn't even aware I had crossed. I joined in a discourse that was already underway. By way of comparison, I have since experienced several occasions when the learning technology community broadcast their discovery of Vygotsky as if they were contributing

something new to the debates on pedagogy. That was a threshold that, in England, I would argue that the education community crossed with Lady Plowden (1967).

Second, I now find myself training professionals in uses of ICT that are dependent on a whole raft of 'knowledge' and processes that remain, as far as the 'client' is concerned completely unknown, irrelevant and unworthy of their time and attention. Put simply, we don't know how Tesco's workflow system operates, all we care about is that when the barcode is scanned by the reader, our purchase is recorded and will generate a bill of charges accordingly:

"Don't tell me how it works; just show me what to do.." (Anon 1989, 1999, 2000 [...] 2010, 2011)

People cross technological thresholds now - because they have to ( $N_I$ ). In the domain of education, take, for example, uses of Ofsted's individual school performance data tool RAISEonline ([www.raiseonline.org](http://www.raiseonline.org)). Successful head teachers use this system as a means of creating their own story of performance ahead of an Ofsted inspection visit. They are not concerned with its technological underpinnings (asp.net. MySql etc.), they are on the other side of a threshold where they are enabled to download, print out and then talk to a hard copy data report - with diagrams - in my experience, how they were generated is of no interest to them. In the domain of professional learning, lawyers, doctors, bankers, accountants and increasingly teachers attain professional qualifications through online means only. Again, they appear to be on the side of a threshold which is, to all intents and purposes, invisible.

Whilst the threshold may be invisible, it has been possible to observe that this phenomenon has occurred. Indeed, in my career, looking back, I would suggest that there has been more than one threshold 'moment'. Had I recorded or documented systematically as I went along all that I was experiencing, this might have been a very different thesis. It might have been possible to



convert such data into an empirical study with quantifiable outcomes or a series of impact assessments. In keeping however, with Foucault's hypothesis (1972), Papert's analysis (1993) and Waldrop's prognosis (1993), I decided that it was in the heuristic, exploratory, open-ended, post-structuralist *modus operandi* that I unknowingly adopted back in 1989 that I might be able to identify some meaningfulness for myself and perhaps, then, for other sense-making practitioners (see West, 2004).

In short, using a traditional research methodology was never going to be appropriate for this study, which is why I have developed one that seems to be a better fit with the overarching intentions. It requires some detailed explanation. This is akin to the rationale for their work articulated by Dadds and Hart (2001 p. 6)

"This, then, is the way we invented our methodological way through the project, designing the route to suit what we wanted to do and the ways in which we wanted to foreground the perspectives of the practitioner researchers in our analysis and theorising." (Dadds and Hart, *ibid*)

It is the deployment of a relativistic epistemological method such as this that sponsors the specific research methodology for this study.

### 3.1.1: Why an auto/biographic case study approach?

In keeping with the insights of Michael Polanyi (1962), I have become uncomfortable with the outcomes of positivist and quantitative methods, the so-called ‘scientific’ approaches (See e.g. Scott, (2000); Dawkins, (2006), “...the dominant form in educational research” (Whitehead and McNiff, 2006 p. 4). I have, therefore, selected a combination of methods that are at the other end of the research paradigm continuum as articulated by, for example, Guba (1990), Elliot (1991), Somekh (1995) and Hopkins (2002). My reluctance to use surveys, statistics or measurement scales is based on the interpretation of apparently ‘raw’ data seeming to be dependent on the mindset, prejudices and preoccupations of the researchers (e.g. OFSTED, 2004; Dawkins 2006, OFSTED 2007). This is a view shared, and extended, by others working with the ‘fuzziness’ of educational practice and personal and professional development:

“The methodology preferred in investigating the problem of understanding human social behaviour, it is implied, needs to be addressed by ‘large scale’ quantitative methods, which produce verifiable and ‘tested’ data. Tested does not mean the same as true, as the understanding arrived at remains partial.” (Reid, 2008 p. 22)

Reid’s work - which owes much to the mentoring of Linden West in Canterbury - has attempted to find an approach to research that takes account of the complexity of human experience because, “... different people will construe the world in different ways according to their social viewpoint thereby producing *versions* of reality” (Reid, *ibid*). She notes also, within this construct, that it is impossible to extract the researcher from the research (Reid, 2008 p. 23) and goes on to make a crucial point for my study:

“Rather than trying to distance ourselves or apologise for our involvement, by acknowledging the self in research we can engage with our pre-existing understandings and assumptions ...” (Reid, 2008 p. 25)

In one sense, I have taken this thinking to its logical zenith. This research is about the researcher and no attempt is being made to distance the object from its methodology. This approach resonates well with Whitehead and McNiff's increasing frustration with interpretive action research which they say positions "the researcher as separate from the objects of inquiry, namely, the practitioners they are studying." They go on to remark, "This separation between researcher and researched is deepened in the new technical forms [of action research], where the researcher's responsibility is to create action plans for a practitioner to implement." (Whitehead and McNiff, 2006 p. 24). This is a reason why this work is not positioned as pure action research even though it is the actions arising from the reflection on experiences that are professionally interesting. What is not possible in auto/biographic case study research is the removal of the self from the project. Whitehead and McNiff would argue therefore that my personal ontology is influencing my approach to methodology:

"If however you see yourself as part of other people's lives, and they of yours, you may adopt an insider participative approach, which would involve you in offering descriptions and explanations for how you and they were involved in mutual relationships of influence." (Whitehead and McNiff, 2006 p. 23)

That being said, my autobiographical immersion in the process does not permit epistemological woolliness or a cavalier approach to methodology. The need for accuracy and attention to detail is exhorted by Abbs (1974) commenting on his own methodology. That is why I have taken time to write narrative accounts of the illustrative moments (IMs) that are the research objects of the study, triangulating them with *aide-memoires* (e.g., Appendix 1, a scanned version of a hand-written journal, written during a formative trip to New Zealand). This is in keeping with the eclectic approach of auto/biographic researchers:

"We used a variety of methods in the evaluation: focus groups, in-depth auto/biographical interviews and participant observation. We built an eclectic multi-faceted approach, with the aim of creating a dynamic, cyclical, reflexive as well as collaborative enquiry. Our aim was to inductively generate themes from the material and interrogate and interpret these with the people concerned, in a process of shared learning. Researchers often adopt a stance of knower rather than learner." (West and Carlson, 2007 p.39)

West's (2004) approach to research has been instructive and informative for me in this study especially in establishing the importance of auto/biography in developing self-awareness and perception. This is further illuminated when benchmarked against the propositions of Whitehead and McNiff. For example:

"If you perceive yourself as a participant in the world, interacting with others, you may see your interactions as a process of creating new knowledge individually and collectively. You would test any provisional understandings against the critiques of your companions. This living process would require an openness to new possibilities, and a resistance to closure." (Whitehead and McNiff, 2006 p. 23)

The work of Swann & Pratt (2003) has also been helpful in arguing that educational research needs to make sense to the people using it so that they are empowered to select the most appropriate method or collection of methods as suggested by the object(s) of the research. Similarly, Meekums notes that in the field of auto-ethnography, 'researcher subjectivity is seen as a legitimate lens for examination of social and cultural phenomena, rather than a voice to be exorcised' (Meekums, 2008 p. 287).

Ethnography, and thus auto-ethnography, seek to describe and narrate experience 'highlighting stories of relationships and emotions affected by social and cultural frameworks' (Meekums, 2008 *ibid*). My research focuses not on the stories (the IMs) themselves so much as the reflections on them and the actions within and arising from them i.e. the reflexivity of auto/biography. The reflexivity of this method is accounted for more fully by the slash "/" in auto/biography as revealed in an etymological analysis of the term (see section 3.1.4).

Since it is my professional learning that is the object of the research, an auto/biographic method is thus deemed an appropriate method for it.

The intention is to take an approach to aspects of my autobiography in a multi-layered way. For this reason, it might have been appropriate to constitute this as a 'single case' study method (see Yin, 1994). However, given the detail necessary to achieve meaningfulness, it has been decided to extract five illustrative moments from the autobiography around which to structure the reflexive process and thus to adapt extensively case study methods.

Whilst auto/biographic research methodology is becoming increasingly used in research projects, knowledge of it is confined to a relatively small, though growing academic community (See e.g. the European Network for Life History Research), and so it seems important to outline its origins and provenance. Arguably its origins are within the philosophical tradition of phenomenology the architect of which would appear to be Edmund Husserl (1970). What follows is an analysis of phenomenological methods in research which builds on some of the relevant insights from phenomenology on the 'self' set out in chapter 2.

### 3.1.2: Phenomenological underpinnings

Put simply, phenomenology is the study of phenomena which includes both objects and subjects but it is also the intellectual domain where subject can be object and *vice versa* (see Natanson, 1970; Sokolowski, 2000; Russell, 2007). Arguably, the doyen of phenomenological research processes is Clark Moustakas, he writes,

“The methods that are central include: growing quiet and listening; coming to an inward clearing; connecting with a dominant question, issue, or concern, related to a specific person (including one’s self), or a situation or an event; describing the experience; determining the qualities, invariant constituents and core themes; considering possible meanings; and arriving at an understanding of the essences of those experiences.”  
(Moustakas, 1994 p. 63)

To be clear, this thesis focuses on the essences of the five illustrative moments that constitute the objects of the research. I want to argue that prior to engaging in the structured analysis of the moments, there seems to be something 'essential' between them that transcends the time span and connects them up as parts of a constituent whole; something that I want to explore, understand and develop. At this stage that shared 'essence' would seem to be the N-ness of the framework.

Central to phenomenological methods is the self. My intention is thus to excavate systematically my own autobiography, but with a narrow focus on the five critical incidents (phenomena), as illustrative moments – things that Moustakas calls, ‘experiences’ (Moustakas *ibid*). My selection of these experiences comes from reflexive processes that have suggested they were important milestones on my professional learning journey. To aid this process I intend to approach them in the ‘philosophical attitude’ as described by Natanson (1970) and Sokolowski (2000) so that each of these is seen as a ‘moment’ in the ‘whole’ of my life and its auto/biography. The term auto/biography and its etymology are further explored below (see 3.1.4).

By this, I mean that each illustrative moment will be examined as though it were, metaphorically, a cube (see Natanson, 1970 and below). One of the problems with straightforward narrative is that it can render findings in two dimensions only. In effect it is only like a non-critical reading of a text where no attempt is made to analyse what is ‘written between the lines’ or that which operates as a sub-text to the plot. The adoption of this ‘phenomenological approach’ enables me to consider each object – the five illustrative moments - from a range of perspectives, sides or aspects, literally ‘a multi-faceted approach’ (West and Carlson, 2007 p. 36) . Thus, in this auto/biographic case study, each incident will be explored for what it disclosed to my evolving professional self. In so doing, rather than examine each metaphorical ‘cube’ from the flat perspective as seen in figure 2 above, each will be looked at from ‘round the back’, at the side, from above and from below as signified by figure 3 (also above) which shows the same object viewed from a corner-on perspective. Changing the perspective on the IMs may well alter the perception of what is seen and what it may represent. Each object may look very different. It is my contention that this take on my autobiographic moments will mean that the ensuing analyses could be more rich and potentially useful, than if they had been from a 'narrative' perspective only.

This is in keeping with the insight of what Moustakas terms ‘transcendental phenomenology’ (Moustakas, 1994 p. 25) whose rationale derived from Husserl’s work,

“For a while I became an isolate, in the way Husserl advised, withdrawing completely into myself, while seeking to acquire knowledge of science through concentrated studies of experience and the reflective powers of the self. I sought to place myself in Husserl’s world of transcendental phenomenology, while recognizing that my own knowledge and experience, in a free, open and imaginative sense, ultimately would determine the core ideas and values that would linger and endure” (Moustakas, 1994, p. 26)

The concentrated studies I have undertaken hitherto tentatively, but will re-visit as part of the systematic research phase of the project, conform to accepted descriptions of reflections on critical incidents as in the work of Jasper (2003) who says:

“We have used this term to refer to any specific occurrence that happens to us that we can use as a focus for our reflective activity. Utilising these for analysis using a structured framework enables us to build up a collection of evidence of our learning and development” (Jasper, 2003 p. 154)

‘Telling a story’ is, in human behavioural terms, achievable in a number of ways, one of which is autobiography (see next sub-section). Here is some advice for those writing reflectively within the field of medicine at Monash University in Australia,

“A critical incident need not be a dramatic event: usually it is an incident which has significance for you. It is often an event which made you stop and think, or one that raised questions for you. It may have made you question an aspect of your beliefs, values, attitude or behaviour. It is an incident which in some way has had a significant impact on your personal and professional learning.” (CALT, 2008)

The selected critical incidents or ‘illustrative moments’ (IMs) as I am choosing to name them, seem to me to have raised questions for me, questioned existing behaviours and practices and, since I am no longer a teacher of religious education, seem to have had an impact on my personal and professional learning. This is further explored in section 3.1.7

In the context of defining a research methodology the *object*, ‘myself’, becomes the *subject* of the study for it is to be used as a key to unlock the space at the interlocution of epistemology, self and (information) technology, in this auto/biographic case study. In Husserl’s account of phenomenology, “*noetic* analyses look at the structure of acts [...] whilst *noematic* analyses look at the structure of objects.” (Russell, 2007 p.84; or Sokolowski, 2000) Were the study to be of the technologies I have worked with to achieve my professional learning gains, the analysis would be necessarily noematic, but that is not the intention. Rather, I intend to examine the self-



referenced acts of learning to which technologies have contributed thus rendering, within the phenomenological attitude, the analysis noetic. There is a chance that if the research turns out to warrant the claims I made in section 2.2x about the existence of an albeit theoretical framework, time will have to be spent exploring this 'object' noematically in the latter stages of chapter 4 and further in chapter 5. This will be to theorise more fully about the nature of that object and how it is structured.

### 3.1.3: Autobiography

That this study seeks to examine aspects of my self as a learner and professional, necessarily locates it within an established tradition – autobiography. In order to support my methodology further, I sought and found justification within the research methods literature and would point to the work of Abbs (1974) as seminal. Tacit support for the methodology is also to be found in the work of Dadds and Hart (2001) and in the robust critique of the method offered by Scott (2000). Abbs asserts that, “Autobiography is the search backwards into time to discover the evolution of the true self...and [its] poised flight into the future” (Abbs, 1974 p. 7).

A reinforcement for the adoption of an attenuated autobiographic method was found in the docu-novel ‘*iPod, therefore I am*’ (Jones, 2006) where the author produces an autobiography by reflecting on the contents of his iPod and what it tells himself about himself at different ‘moments’ in his life. The value of that “scripture” to the thesis is significant since it epitomises the relationship between self and technology and does so through the telling of a number of stories from an individual's life history. This is redolent of a tradition which Abbs says, started with St. Augustine of Hippo (Abbs, 1974 p.7) and includes other texts in the canon of English literature like the *Diary of Samuel Pepys* and the quasi-autobiographical works of Helen Fielding (1997; 2004). Jones is not, however, attempting to obtain a Ph.D. and so his self-reflective analysis remains at surface level<sup>46</sup> – viz., a two-dimensional narrative. “The essential building blocks of the biographical<sup>47</sup> method are the text, the narrative, time, multiple perspectives, relationships between the structural and the agential, traditions of thought and inscriptive practices, interpretation and identity.” (Scott, 2000, p.95)

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<sup>46</sup> On re-reading this, I would liken Jones' work to that recorded by me at Stage 2 of the research process (see section 4.2)

<sup>47</sup> Of note here is the interchangeability of the term *biography* with *autobiography* since the essential difference between the two types of literature is authorship (see Scott, 2000)

As an RE specialist the use of story and narrative were essential components in my pedagogic toolkit. I often created 'stories' in order to make substantive teaching points, some of which were published in pupil resources (see Hughes, 1999 p.12). Later, I drew on the experiences of other head of department colleagues when creating vignettes to illustrate by narrative, subject leadership and management techniques (see e.g. Hughes, 2003b p.56) and I used my own autobiographic experiences to make relevant to others my own theoretical perspectives, (see e.g. Hughes, 2003b p.55). In that example, the vignette was anonymised as an attempt to make it more accessible to readers, but its value lies in the sense it might make to other meaning-making practitioners facing similar challenges in analogous situations. If it made sense at all, it was because it was born of authentic, lived experience. That I reflected on such experiences and adjusted my practice accordingly would suggest that I had adopted auto/pedagogic practice without knowing such a phenomenon existed.

Many of the authors on whose writing I have drawn to provide the theoretical underpinning for this study report autobiographically learning and/or thinking that changed them. A selection of their comments are presented here as witness statements on the power of autobiography:

Polanyi writes,

"I can still remember my own amazement when, about 1919, I first heard the idea mooted that the anomalies were to be regarded as a refutation of the equilibrium postulated by Arrhenius and to be explained by a different theory." (Polanyi, 1974 p.293)

McDonagh writes,

"It is a matter of autobiographical record that such occasional responses become more and more infrequent and that my choice of themes for lectures or articles is much more determined by my own preoccupations and much less by the requirements of organisers and editors. It is the history and value of these preoccupations that determine the autobiographical significance of the issues discussed in this book." (McDonagh, 1979 p.2)

Law writes,

"When I look back at those crazy times they have a dreamlike, unreal quality. The meetings in America were in weird and wonderful places. Grown men would start crying as a vision of the future touched a previously unexposed nerve. But almost two years after it was disbanded I realised what a mistake that kind of 'Task Force' mentality is. We were creating a micro-culture for ourselves and were not changing the company." (Law, 2001 p.22)

Naughton writes,

"This is an intensely personal work which makes no claims to provide a definitive account of the Net's evolution. Rather it picks out aspects of the story which seem to me to be significant, and tries to explain why. And if it reads like a passionate work, then that is because I feel passionately about its subject." (Naughton, 2000 p.ix)

Friedman writes,

"As I came to this realization, I was filled with both excitement and dread. The journalist in me was excited at having found a framework to better understand the morning headlines and to explain what was happening in the world today." (Friedman, 2006 p. 8)

Echoes of each of these quotations appear in all the autobiographic writing that comprises the Appendices 1-6 of this study. They would remain however descriptive accounts rather than analytical objects if the method of this study was only autobiographic.

### 3.1.4: Auto/biography

Autobiography can be said, then, to describe ‘what’ happened. West’s work (2004; West & Carlson, 2007) suggests that analysis of these narratives can, if appropriately constructed, lead to potential accounts of ‘the causes and motives’ of what happened or the meaning that underpins, surrounds or influences what happened. West might say, the ‘why’ of a phenomenon. “... autobiography, far from being the enemy of insight and profound knowledge, is a powerful and natural resource to be used to understand others’ life histories; and that empathy and relatedness are essential to telling stories.” (West, 2004 p. 19) Central to this analysis is the active participation of the putative knower in the act of meaning-making. “It is also about seeing our own lives as potential sources of experience to help us more fully understand the other just as their lives may help us better understand our own” (West & Carlson, 2007 p. 38).

Auto/biographic approaches take this method to another level because participants are encouraged to reflect on their life histories in order to make explicit their motivations and inspirations (West, 2004), and the factors that empower or constrain them in their professional lives (Day et al., 2006; Day et al., 2007). “This perspective concentrates not on a system of structures and institutions which are presumed to exist independent of the people who inhabit them, but on the symbolic processes by which human beings create, sustain, and reproduce their life worlds” (Goodson and Mangan, 1991 p. 9).

“Auto/biography’ draws attention to the inter-relationship between construction of one’s own life through autobiography and the construction of the life of another through biography.” (West and Carlson, 2007 p. 41)

It is this reflexivity that distinguishes auto/biography from autobiography, hence the insertion of the "/" or slash. In the French language there is a sub-category of 'doing' words known as reflexive verbs. These are further defined as verbs that 'reflect the action back onto the subject'

as in the case of *Je me lave* (I wash myself). In the *praxis*-oriented work of theologians of liberation, it is the action arising from reflection that distinguishes their *modus operandi* from those who reflect only and act not. The point being that there is a dynamic cycle back and forth between action and reflection. In my view reflection is aided by critical review of relevant literature which is why at each point in my autobiography, I have attempted to 'read around' the work in which I was contemporaneously engaged. Gutierrez describes a person engaged in this type of activity as an 'organic intellectual'<sup>48</sup>:

"He will be someone personally and vitally engaged in historical realities with specific times and places. He will be engaged where nations, social classes, people struggle to free themselves from domination and oppression by other nations, classes and people."  
(Gutierrez, 1971 p.13)

It is worth pausing at this point to compare Gutierrez's hermeneutic circle (1971) - see also Boff, 1981 pp. 37-39) with a more recent iteration of a reflective cycle as reported by Jasper (2003 p.77):

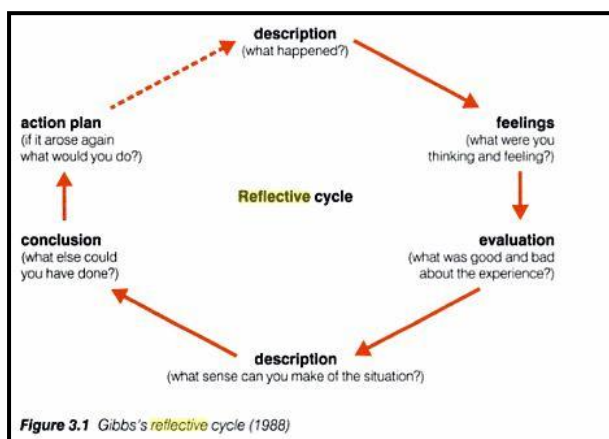


Figure 13: Jasper's Version of Gibbs (1988)

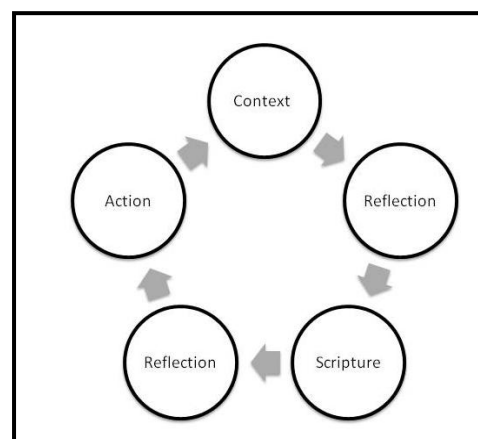


Figure 14: A simplified hermeneutic circle

Of note in these two graphics are: the automatic yellow shading inserted by Google Scholar, indicating my search for Jasper + Reflective + Practice; the cyclical nature of the processes showing the ceaseless journey of change and improvement and the comparable emphases on

<sup>48</sup> A term he attributes to Antonio Gramsci (1971).

context/situation and action. These themes are repeated in auto/biographic work where there is a strong sense that the individual is engaging in a continuous process of enquiry which tracks their daily life and all its challenges. Meekums writes this of her own research:

"The procedure was not worked out in advance, but evolved in response to my inner promptings and also to external opportunity at each stage. In many ways it mirrored my career trajectory in following a creative cycle of conscious decision-making, indwelling, inspiration and testing of ideas." (Meekums, 2008 p.289)

There seem to be direct parallels between Meekums' lived experience and my own attempts at making meaning from my own career narrative. Gladwell puts it this way,

"We have some experiences. We think them through. We develop a theory. And then finally we put two and two together. That's the way learning works." (Gladwell, 2006 p. 9)

It is worth noting Gladwell's assertion, 'We develop a theory' (*ibid*); it will become meaningful later in this chapter. This is very similar to the intellectual processes adopted by theologians of liberation alluded to above. The next few words indicate how I will be adapting their hermeneutic circle in the context of this study.

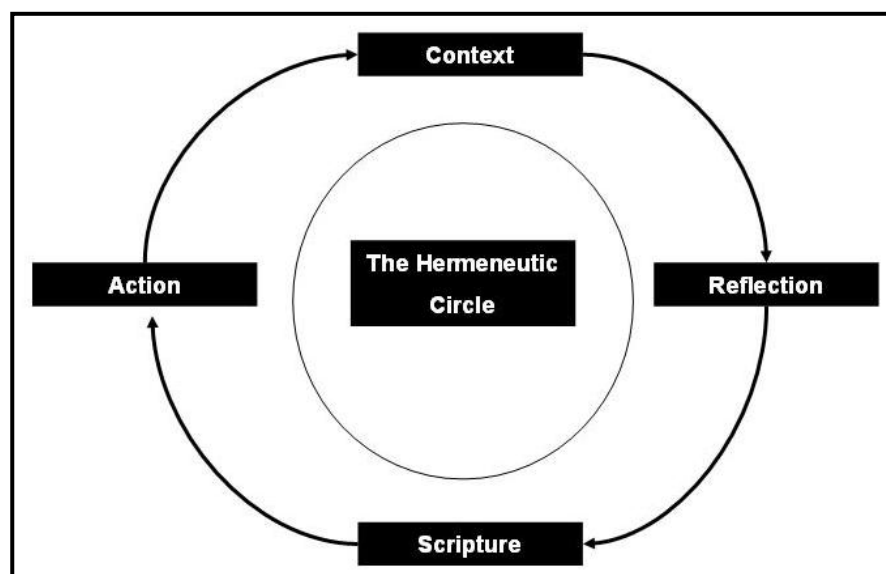
As I learned from Reid (2008) the edges between the researcher and the research are 'fuzzy'. As I learned from Natanson (1970) and Sokoloski (2000), in phenomenological methodologies, objects become subjects and vice versa. It would therefore be incongruous to separate the insights elicited from the process by which it was gathered, especially since, in one sense, I am my own data.

What appears to matter more is the interpretation that I wish to put on the raw data. This is insight derived from later adopters of phenomenological approaches like Jackson (1997, 2006) who recognise the potential dangers of the super-imposition of researchers' values on their objects, and thus regard it as essential to make explicit their own involvement in the dynamics of

the research encounter. Moreover, in keeping with the auto/biographic approach adopted for this thesis, this is about my interpretation of events and how they influenced my learning journey, my career pathway, my professional standing and prompted me to take further auto/pedagogic actions.

Clearly, therefore, there needs to be an explicit statement of the interpretive process. As should be clear by now, a theme that flows through this thesis is dependent on my engagement with, knowledge, understanding and utilisation of the theological discourse. From the 1960s there has been a very clear hermeneutic applied to theological processes which owes much, in theoretical terms, to the insights of Foucault (1972), Derrida (e.g. 1992) and their analysis of contexts and ‘scriptures’. In political terms, theological analysis of contexts and the pastoral circumstances of believers, depend extensively on the work of Gustavo Gutierrez (b. 1928). His hermeneutic circle has been influential all the way through my career and now forms a part of the analytical methodology of the data emerging from this study.

#### **An updated ‘Hermeneutic Circle’ (after Gutierrez, 1971)**



**Figure 15: The Hermeneutic Circle**



The diagram in figure 15 has been drawn to represent pictorially a distillation of Gutierrez's analytical tool. As was seen in section 2.4, this tool has been adopted or adapted for use in a variety of situations where change was necessary pastorally (e.g. South America, South Africa).

Self-evidently I am neither oppressed, marginalised or excluded. A relevant criticism of this method might be therefore that to adopt it is patronising and inappropriate. I would contend, however, that it is made relevant for the structure it brings to reflection on specific context(s). These were essentially contexts of 'unknowing', in the sense in which Ryle intended it (see chapter 2). Liberation, in my case, through a dynamic cyclical reflexive process was from ignorance. That the reflections led to action, start to warrant my beliefs - the classical theory of knowledge - about how I came to know new things:

"We are interested in knowledge, according to this theory, because we are interested in the truths of our beliefs; and the search for knowledge is the search for justifications which guarantee that truth." (Scruton, 2004 p. 318)

The auto/biographic method I use here has been put together as an explicit attempt to search for justifications for the beliefs about the 'what' of auto/pedagogy. This necessitates a structure for the reflexive process which takes account of aspects of the circle.

The following table sets out my key for each of the components in the diagram, demonstrating how they might be used by those participatory analysts looking at their own setting. Once complete, I intend to develop this for the present study before applying it to each of the five sub-case studies. Please note here terminology I was using at a much earlier stage of the study - from this point on I drop the term sub-case studies and refer only to illustrative moments (IMs).

**Table 2: A key to understanding Gutierrez's hermeneutic**

Component	Exemplar
<b>Context</b>	<p>In this component of the hermeneutic circle, the participants describe or narrate their experience. In all context theologies, the experience to be described is an experience arising out of marginalisation, alienation, oppression or exclusion from power sharing within society. It is through these lenses that actions or behaviours on the part of others are observed and noted. <i>Campesinos</i> living in the mountains of Peru were encouraged to look at their experience of injustice (see John Medcalf <i>Vamos Caminandos</i>.) in comparison with their European counterparts.</p>
<b>Reflection</b>	<p>Gutierrez exhorted his readers to form themselves together into basic church communities to unite in a common purpose. The next step on the cycle was to examine the shared experience as an intellectual activity through structured reflection in the light of, in his case, Marxist sociological analyses (see Gutierrez, 1971). In some ways this was his most notable achievement in that he effected a reconciliation between the rational religious position of the Church and the secularised sociological position of workers in the field, a reconciliation that was crucial for the, then, Pope who sensed the movement of his flock towards those who would be more likely to achieve freedom in <i>this</i> lifetime.</p> <p>“Catholic thinkers in the past generally followed the Greek tradition of defining the human person as a thinker. In presenting the human person as fundamentally a worker, the Pope in <i>Laborem Exercens</i> is breaking from the Greek tradition and following in the tradition of Karl Marx. Of course he does not become a Marxist merely by adopting this approach. Nevertheless, it is evident that his understanding of human life and society have been profoundly affected by some aspects of Marxist philosophy” (Dorr, 1992 p. 309)</p> <p>Thus, the <i>campesinos</i> would examine land ownership and note that ‘their’ land had been ‘stolen’ by European settlers during the migration into Latin America in the 17<sup>th</sup> and 18<sup>th</sup> Centuries.</p>
<b>Scripture</b>	<p>Given the theological construct in which this was taking place and the fact that, frequently in South America and in the townships of South Africa the one, free, focal point for the community was the church, it is not surprising that this intellectual activity fed into biblical analysis to find scriptures that might be illuminating for the ‘experience’ to be examined. The Old Testament is packed with stories of hero leaders rescuing ‘the people’ from slavery, imprisonment, oppression or injustice. It is not surprising that the Exodus narrative (Ex 1-20) has become a model for liberation movements sponsored by believers from the Judaeo-Christian tradition. The finding of empathic biblical texts became a source of inspiration in taking forward the challenges into political action:</p> <p>“On reaching Jerusalem, Jesus entered the temple area and began driving out those who were buying and selling there. He overturned the tables of the money changers and the benches of those selling doves, and would not allow anyone to carry merchandise through the temple courts.” (Mk 11;15-16)</p>
<b>Action</b>	<p>Gutierrez believed that <i>orthopraxy</i> was more important than orthodoxy (1971). By this he meant that people must act on the basis of their reflections and findings. So the interpretation of impoverishment, exclusion or imprisonment must be addressed in concerted and collaborative action. In this sense he was no different from the Marxists who provided a secularised interpretation of the conditions of</p>

	exploitation prevalent in South America in the 1960s and 1970s. The history of that period is speckled with coups, revolutions, insurrections and counter-revolutions.
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If, as the quotation from Dorr (1992) above shows, Gutierrez (and others, e.g Boff, 1981; Segundo, 1982) could prompt the Pope to accommodate a hitherto anathema creed, and thus to arrive synthetically at a more enriched interpretation, it would appear to follow that the imbuelement of empirical experiences with insights from the most eclectic range of external sources will make the findings of this study powerful and productive potentially.

"Here is a preliminary definition of the hermeneutic circle: it is the continuing change in our interpretation of the Bible which is dictated by the continuing changes in our present-day reality, both individual and societal. 'Hermeneutic' means 'having to do with interpretation'. And the circular nature of this interpretation stems from the fact that each new reality obliges us to interpret the word of God afresh, to change reality accordingly, and then to go back and reinterpret the word of God again, and so on." (Segundo, 1982 p. 8)

So scripture is interpreted in the light of experience and experience is interpreted in the light of scripture. This dynamic and dialogic to'ing and fro'ing is redolent of the iterative processes of software development (see Naughton, 2000 p. 261 or Friedman, 2006 p. 96) and, in complexity theory, the feedback loops that are essential for relevant organisational development (see Stacey, 1994 or McMaster, 1996). It is thus appropriate for this study which has been a continual reflexive dialogic methodologically, as I worked to find a rationale for warranting my true beliefs.

It is for this reason that the next table sets out a revised, adapted and enriched schema to be applied to the five illustrative moments that follow.

**Table 3: A key to understanding my hermeneutic**

<b>Component</b>	<b>Exemplar</b>	<b>My intended research activity</b>
<b>Context</b>	In this component of the hermeneutic circle, the participants describe or narrate their experience. As was seen in section 3.1.4, the use of narrative has become an established	For each illustrative moment, I intend to write a narrative account which will provide details of what happened but which teases out those salient details

	tool in social science research to collect data which is informative of the experience of people. It has many theoretical expressions, like auto-ethnography, auto/biography and history.	that are relevant to the overall epistemological schema. This will be done inline with the chronological account so that the process reads as a story
<b>Reflection</b>	Here participants are encouraged to reflect, with the help of pedagogic agents, such as teachers, computer wizards, coaches, directors of study, existing schemas or programmes, on the narrated experiences in order to establish key messages or lessons to be learned.	Whilst narrating each of the events selected, I intend to explain what each meant at the time and what they have come to mean since. Whilst I may have been aware, future-gazing, of what they might mean at the time, their actual significance is probably only assured now with the benefit of hindsight and in the light of further interpretations that subsequent phenomena may have added to them.
<b>Scripture</b>	This term seems out of place within the meta-narrative of social science research but it is retained here in keeping with Scott's (2000) notion of 'inscriptive' practices. It also points directly to those bits of Christian and other theology that 'pop up' throughout the thesis <sup>49</sup> . Moreover, it is legitimate to use a loose interpretation of its meaning and for it thus to represent the whole literary background to the project which does include key works from the canon(s) of each of the cognate disciplines that it straddles – epistemology, self and (information) technology. For example the work of Seymour Papert (1980) is treated with almost sacred reverence by those referring to it within the emerging discourse of educational technology (see Turkle, 1990; MacFarlane, 1997)	Throughout this thesis, where relevant and necessary to support or endorse key messages arising, references will be made to the literature. Allusions to material in other fields of human enquiry are inevitable given that <i>my</i> self interacts with, for instance, a lot of music. There are times when the words from a song seem to amplify the meaning being derived from reflections on a given incident or that the mindset with which I approach an episode from my career is partly framed by the <i>zeitgeist</i> which will include musical overtones.  Noteworthy here might be the first piece of music, I played using the multimedia functionality of a PC or the first track I downloaded from <i>itunes</i> – the point being that auto/pedagogically I would have thought, 'if I can do this... I wonder if x is possible...'
<b>Action</b>	Activism is the logical outcome of <i>orthopraxy</i> . It is consistent with my preferred learning style which was self-assessed within a NCSL coaching framework as akin to 'active experimentation' (Kolb, 2005). It is also comparable, in educational terms, to that which Benjamin Bloom (1953) described as 'application', that is the ability to "adapt and	In considering each illustrative moment, I will be looking to establish what new bits of learning emerged from them but which were then tried out in other analogous situations. The knowledge acquired of Logisixt referred to below in IM1, solved one short-term problem but also made me

<sup>49</sup> It is also consistent with the accommodation between Marxism and Christianity evinced above and about which Dorr writes powerfully (Dorr, 1992).

	integrate expertise to satisfy a non-standard objective” (see Chapman, 2006).	wonder what might happen if I were to aggregate all the scores from each class on a half termly basis and to what extent such data might lead to me being able to make more informed assessments of the progress of each cohort of pupils.
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### 3.1.5: Case study

"As a research strategy, the case study is used in many situations to contribute to our knowledge of individual, group, organizational, social, political, and related phenomena." (Yin, 2003 p.1)

In keeping with the phenomenological approach, I have chosen to treat myself and my story, as both subject and object of the study and to turn my auto/biographic activities into a significant case study. Scott's work (2000, pp. 92-94) has alerted me to some of the challenges epistemologically to this methodology where he says, for example, "The interpretive or hermeneutical procedure implicit in the biographical act is necessarily replicative of the process undertaken by the auto-biographer". By this he means that the act of 'inscription' (Derrida, 1997), creating narratives, texts and biographies, is subject to conditioning and the superimposition of 'agendas' (Scott, *ibid*). It seems important therefore to approach the case study of myself with a clear understanding of what I intend to '*grapheme*' (Derrida, 1997). Borrowing phraseology, from Marton and Säljö (1976), Greasley and Ashworth (2007) move on to a second order of research epistemology by the adoption of the term, phenomenography. They write,

"Phenomenography is a qualitative methodology in which each particular study focuses on a concept, entity, or situation and tries to map the various ways in which that thing is construed ('experienced, conceptualised, understood, perceived and apprehended') by people." (Greasley & Ashworth, 2007 p. 821)

If phenomenology is the study of phenomena and *grapheme* Derrida's generic term for texts (see Derrida, 1997), then phenomenography can be conceptualised as 'writing about phenomena'.

This is what I intend to do.

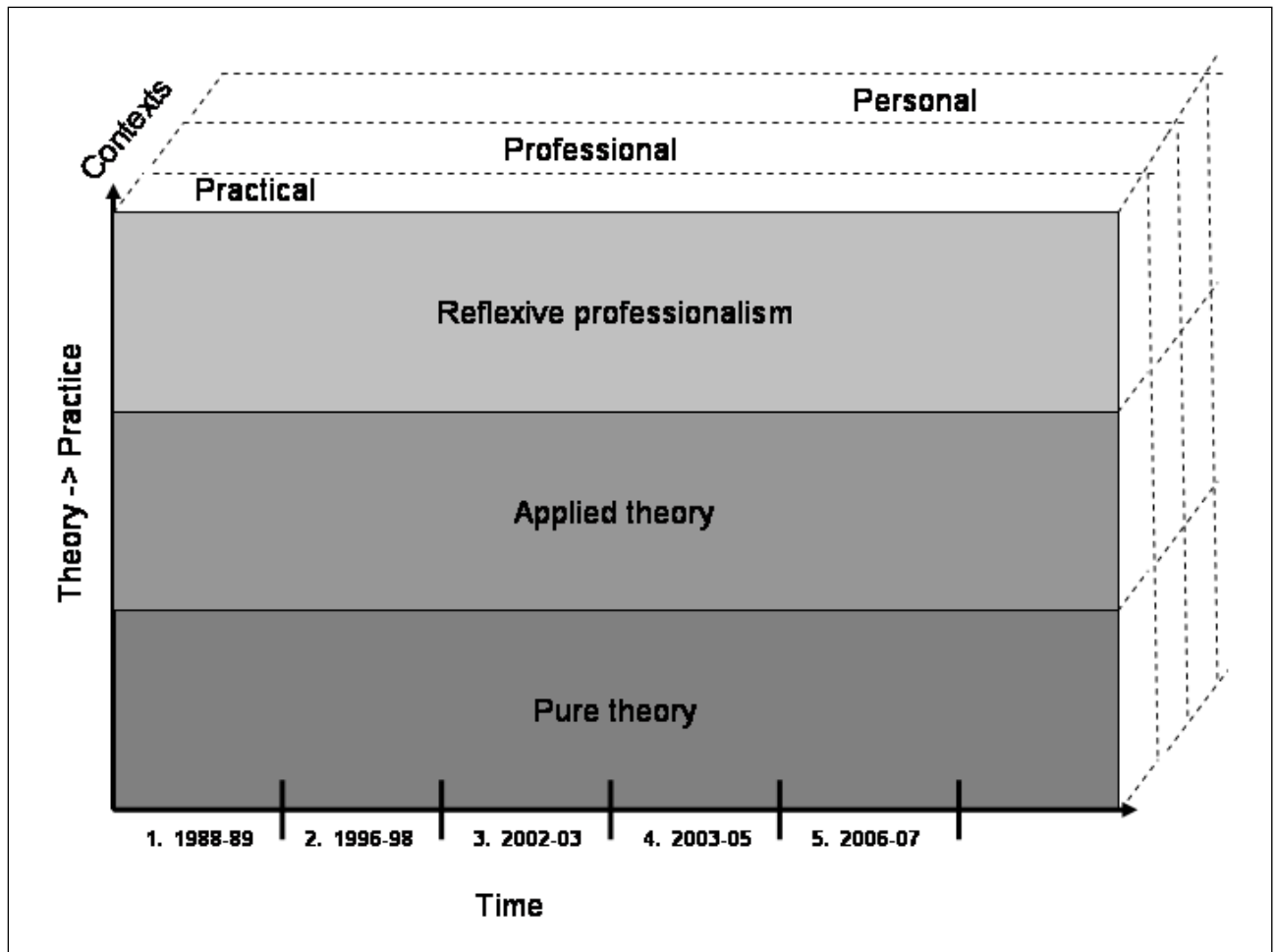
The intention is to limit the research to the study of five phenomena in my autobiography which will be treated as illustrative moments. These critical incidents have been selected because initial reflection suggested that they might indeed conform to the 'insider participative approach'

advocated by Whitehead and McNiff (2006). This is a valid way of tackling a new research field in which the body of knowledge is very much in its infancy. That is why I would assert that the work is best placed within the growing tradition of 'Living Theory':

"We explain that practitioner action researchers should be seen as capable of making significant contributions to quality theory, but to achieve this perception, they need to show how they engage with issues of theory and knowledge in explaining why their research should be assessed in its own terms and from within its own established scholarly traditions." (Whitehead and McNiff, 2006 p. 5)

At this stage of the enquiry, it does not seem appropriate to use illustrative moments approach to *test* existing theory. I make this claim on the basis of my knowledge of the field which indicates that there is no extant theory about auto/pedagogy or that no one has attempted to describe the albeit theoretical space at the interlocution of epistemology, myself and (information) technology.

Case study research is usually regarded as a qualitative method (see Silverman, 2001) and is thus grouped appropriately at the end of the continuum of research paradigms with philosophical, theoretical and phenomenological traditions. However, this work arises out of a very grounded set of experiences and I propose the graph at figure 16 as an illustration of how the work is positioned in relation to other aspects of human enquiry. I would suggest that the intended insider participative work sits within the uppermost adumbration, since the illustrative moments selected will be used to attempt to explore that space where applied theory flows into reflexive professionalism but is made meaningful in its dynamic and cyclical interaction with a real self.



**Figure 16: Illustrative moments *in situ***

Several comments are necessary at this stage. First, it should be noted that case studies are not normally reported as spanning twenty years, though I would contend that this does not render this meaningless, any more than the power of the BBC TV series '7-Up', '14-Up', '21-Up', ... '56-Up' is diminished by its longevity. Indeed, it may well be strengthened by the opportunities for analysis and learning afforded by engagement over such a long period. Second, the duration of each illustrative moment varies, thereby pushing the boundaries of the adoption of the term, 'moment'. Again, I would assert that this is acceptable since it is the profundity of the learning that is in question in each instance not the validity or variability of the conditions under which it took place. Third, the layering of experience, indicated by the three-dimensional nature of the graph, enables one to claim the profundity of the learning that I sense occurred in each of these moments.



Critically, the diagram points to the structured way in which I wish to approach the exploration of these illustrative moments, so that any theory emerging from their analysis will be evident and coherent.

### 3.1.6: The five illustrative moments

It should be noted that along the x axis of the graph, in figure 16, are specific time zones which correlate to the five illustrative moments that I wish to explore as the theory-building data for the thesis. During my fifteen month engagement with 'transcendental phenomenology' (Moustakas, 1994 p. 26 see section 3.1.2), it occurred to me that there were five moments that have been most influential in my professional learning journey. I have chosen to name them as:

- "Can you use a computer?"
- Invention & Development of network (RE-Net)@ St. Simon Stock
- Rhizomic networks emerging from New Zealand experience
- Content management in the TTRB
- Discovery of iPD

There were many other candidate 'moments' that could have been chosen. Moreover some of these IMs (as set out in Appendices 1-6) contain even more granular 'instances' of illumination or illustration. One of the reasons for trying to capture the chronology of this project graphically (i.e. figure 16) is to show the time-boundedness of the IMs. What I learned in each one has, in effect, become a building block for those that came later. What I need to acknowledge here is that the layers of learning derived from each IM was not limited by the time in which they occurred; rather their significance and meaning has evolved over time as I have re-visited them in memory looking for further insight and meaning.

The four stage process of analysis by reflection that I have been through now has made me realise that these IMs were more elastic than static. They stretched back into my past to pull forward knowledge, skills and understanding but they are themselves dragged forward from time to time as I wrestle with new technological challenges in my contemporary professional life.

A further reason why I settled on these five IMs is because of the very obvious impact they had on my career at a superficial level. As an outcome of IM1, I got a job. As an outcome of IM2, I built probably the first RE intranet in the country. As an outcome of IM3, I became the Faculty of Education's Director of Learning and Teaching with ICT. As an outcome of IM4, I became reasonably well-known nationally as one of the organisers of the knowledge base for teacher education and as an outcome of IM5, I became the co-founder of the first, fully-online teacher training programme in the UK. In each case, my professional self was changed and with it my perception of myself and my identity in the eyes of others. I say all of the above with the benefit of hindsight and the long process of reflecting on the reflexive processes that have brought me to this point.

At an early stage of the doctoral process, I began to ask what other characteristics there were in these moments that caused them to appear to be as significant as they were. What I concluded was that each one had caused me to engage in a process of self-directed learning. Now, again with the benefit of hindsight, I realize that what was forming in my mind was the process which I have come now to describe as auto/pedagogy.

In section 2.2x, I articulated a four factor model for describing how auto/pedagogy might be conceptualised. The development of this theoretical framework is an important outcome of the work so far, deriving as it does from reflections on reading (see chapter 2), and hermeneutic processes akin to action research (e.g. McNiff, Lomax and Whitehead, 2002). Each proposed illustrative moment was evaluated against this model as part of the selection process interactively. This is precisely because of the insights derived from the work of Polsani (2002), described in chapter 2.1, where each bit of knowledge informed the design cycle and the design cycle itself informed the evolution of knowledge. Several pilot research objects were also

reviewed as simple narratives in order to refine the questions I would need to ask of them albeit self-referentially, and in the quiet of my own imaginings (Moustakas, 1994 p. 25). In addition, in very simple terms the following questions emerged as a schema: Who? What? When? Where? Why? To these almost journalistic type questions I added, “what influence did these illustrative moments have on: a) learners, b) the professional context and c) myself.

I then posed of them two further questions:

- What new knowledge or understanding did I derive from these incidents about myself and technology?
- What influence did these events have on my career trajectory?

To assist the reflexive approaches to these ‘objects’, I applied Gutierrez’s (1971) ‘hermeneutic circle’ (see above) which required me to examine them in the light of theoretical perspectives, to review what impact such reading had on my understanding of what had occurred and to evaluate the interrelationship of these empirical enquiries to the evolution of my own personal knowledge base and evolutionary career pathway. This is my adaptation of the ‘dialogical, dynamic, cyclical, reflexive’ approach advocated by West and Carlson (2007).

Indeed, the selection of those experiences represented a significant series of actions of self-awareness and critical reflection albeit subjective and personal.

### 3.1.7: Why 'Illustrative Moments'?

I have chosen to use the term illustrative moments for two reasons: first to signal that I am not adopting critical incident theory fully and, second, because the philosophical underpinnings of this thesis suggest a more tentative approach in keeping with the insights of McDonagh (1979) and Husserl (2001) both of whom wanted to illuminate experience with theory rather than explore experience pragmatically.

The question this project is attempting to answer is, whether or not there is a discernible process that a practitioner goes through when seeking to make professional learning gains. During the process of developing a 'focal theory' (Phillips and Pugh, 1995) for the thesis, I noticed a pattern of phenomena, which seemed to be present when I was engaged in informal learning episodes associated with the development of knowledge, skills or understanding of or about technology. Reflections on such episodes, in keeping with the hermeneutic circle (Gutierrez, 1971 p.13), which drew on my existing knowledge of some 'grand narratives' in the domain of education (Lyotard, 1984) seemed to provide some literary support for the emerging hypothesis. For example, Maslow's (1943) theory provided support for my hunch that I only learned things I needed to learn. Vygotsky's (1954, 1978) theory provided support for my belief that progress in knowledge acquisition was in part due to the level of knowledge I carried into the zone of proximal development around a learning episode. Wenger's (1998) theory encouraged me to believe that somewhere out there, there would be someone or something that could help me across that zone of proximal development in an agential sense. I was also fully aware that Kolb (2005) would have argued that for something to become embedded new knowledge, I would have to actively experiment with it in new and different situations. What I was beginning to realise was that the five 'moments' of career-changing significance appeared also to evince or illustrate each of these four phenomena: the need to learn something, the dependence of new

learning on prior knowledge, the participation of myself in professional learning networks wherein andragogical agents might operate and the need to try out new learning in new situations or contexts.

It then occurred to me that in these five illustrative moments what I might be harbouring was a framework for my own self-directed learning, that which I now call auto/pedagogy. Such a framework, if it were to be found to exist might also be useful to others, I pondered.

It is the joining up into a framework and demonstration of the inter-connected nature of these four phenomena which I believe to be a unique contribution to the Education domain. However, I appreciate the need to demonstrate through a methodical approach that postulation of such a framework is justified and that the phenomena therein are appropriately described and explained. Here, then I set out the framework and demonstrate how, as a tool, it provides intra-judge reliability for the analysis of the research objects themselves. Thus, in keeping with phenomenological research methods, as also demonstrated and explained in chapter 2, the framework is the subject and object of the research intra-dynamically.

### 3.1.8: How will this auto/biographic case study approach be deployed?

"In processes of data gathering, we say, the aim is to gather data primarily in terms of the study of oneself, in order to show progress in the growth of one's own learning and how that learning can influence future learning and action." (Whitehead and McNiff, 2006 p. 5)

The intention of this study is to convert the apparently random acts of unconscious 'insider participation' into a structured research and development process in the hope of pointing to a phenomenon I have chosen to call auto/pedagogy. This is a living theoretical process as indicated by the quotation that heads this sub-section. The method by which this is to be achieved is an adapted form of auto/biography because this appears to be the most pertinent existing way of exploring a provisional and emergent phenomenon which, so far, only appears to be the case in my career narrative.

An important finding of Polanyi's work was that "The avowed purpose of the exact sciences is to establish complete intellectual control over experience in terms of precise rules which can be formally set out and empirically tested" (Polanyi, 1962 p. 18). He states "that complete objectivity as usually attributed to the exact sciences is a false ideal" (Polanyi, *ibid*). Moreover, some hard scientists themselves point to the necessity of using case studies in some circumstances. "One reason is that the ultimate units of ecological theory (e.g., organisms) are few in number as compared with the ultimate units in other scientific theories (e.g., molecules or subatomic particles), and they cannot easily be replicated" (Schraeder-Frechette and McCoy, 1994 p. 230). Interpreting this observation is simple and transcribing it into a metaphor for my methodology even more so. The unit of theory with which I am working is small – my own self-referenced experience(s). Thus, I am not seeking to establish complete intellectual control over auto/pedagogy, rather I am trying to generate some theory in support of the hypothesis.

If knowledge is to be co-constructed out of this unit of theory, it follows that some logic be applied to its analysis. It seems appropriate therefore to subject the research objects i.e. the five illustrative moments to the same investigative processes. This will enable:

- comparisons to be drawn
- contrasts from context to context or object to object to be noted and,
- patterns discerned from case to case

In so-doing the repetition logic that this will promote should increase the intra-judge reliability of any findings (see Yin, 1994), where variations from IM to IM will inform and enrich understanding rather than contradict them. So each illustrative moment will be written about systematically for what it suggests cognitively, viscerally and emotionally. This will entail acknowledging phenomenologically that my ‘memory’ of the event will be influenced by how ‘it was for me, at the time’ “Remembering is more like perceiving than like picturing something. In memory I do not see something that looks like what I remember; I remember that object itself, at another time” (Sokolowski, 2000 p. 67). It will also involve analysing the roles out of which I was acting: “...the self is constituted through the agency of role-taking, the original form of which is the act of reflection in which the self becomes an object for its own inspection” (Natanson, 1970 p. 23). It could be argued that the 20+ year gap between the first illustrative moment and the time of writing is too great for any meaningful data to be elicited but I think this is contestable. The memories of, say, war veterans returning to the D-Day beaches after 60 years were no less vivid in re-telling than those captured on film shortly after the events. Of course, the presence of stimuli as triggers for memory would have been powerful once back *in situ*<sup>50</sup>, but the veterans themselves had no vested interest in exaggeration, obfuscation or fantasy. Similarly, the presence of computers on my desk is a daily reminder of the very first encounter I had with auto/pedagogy, even though I was not aware at the time of what it was. Gallwey (e.g.

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<sup>50</sup> The issue of the reliability or not of memory is addressed by references to both the work of Green and Gallwey (1986) and Natanson (1970)



1986) has made a substantial fortune out of acknowledging the powerful phenomenon of memory and its influence on our ability to perform in a range of human activities. In partnership with Green (1986), he shows this clearly in relation to the ‘inner game of music’,

“I’d like you to go back for a moment and take a look at the most painful and unpleasant musical experience you ever had. Even if it happened years ago, you may still have a very vivid picture of what happened – the tension in your body, and even the conflicts that were taking place in your head. It is likely to be an event that is engraved in your memory with surprising clarity, and you can probably describe it easily.” (Green and Gallwey, 1986 p. 25)

This insight I share, since I will never forget the concert I was to perform in as an 11 year old playing the piano. I was not rehearsed sufficiently, I didn’t know the music and I made a complete hash of it – I know this viscerally as well as cognitively! As a profound learning experience it is of great significance and to this day I have always been prepared for ‘public’ performance to the best of my ability - having now read and understood critical incident theory (Jasper, 2003) I evaluate that concert as a critical incident. Green and Gallwey point also to the influence of positive experiences as models to use when seeking to play an inner game with oneself before performance,

“The hundreds of musicians that I have spoken with – soloists, orchestral players, young students and seasoned sessions men –almost all find it very difficult to remember much about the times when everything went well. They were aware that things were falling into place, and they remember feeling exhilarated and delighted.” (Green and Gallwey, 1986 p. 25)

Pointed to here is a phenomenon experienced unconsciously by classroom teachers and lecturers everyday – the delivery of ‘good’ lessons. Those who are reflexive professionals as well, will also point to those formative experiences where they ‘know’ things have gone less well. Learning from those events, and preparing to avoid repeat ‘performances’ might be described as the ‘inner game’ of teaching. In the hundreds of conversations, I’ve had with teachers over the 20+ years of unconscious engagement with this exploration, one thing I have learned anecdotally

is that, in the use of ICT in teaching, we've all had that profound experience of it not working or a spectacular crash in front of our pupils or students - a truly critical incident. Mental rehearsal, deep preparation and testing of the equipment before hand, are just some of the ways in which colleagues play the 'inner game' of teaching with information and communications technology. For others, the mental block, the 'self-interference' (Green and Gallwey, 1986 p. 25) or the assumption of technological breakdown caused by powerful experiences of ICT exposure make them resistant to ever trying to use technology again. My point is, on reflection, that the illustrative moments came to the fore as candidates for inclusion in the auto/biographic case study because of the profound professional learning that they caused. They were every bit as formative as 'that' moment as an age 11 performer or 'that' moment when I was presenting on the Building Schools for the Future programme in 2008, to the National Association for the Advancement of Computers in Education (NAACE) conference and the whole ICT system crashed.

The short excursus into the 'inner game' of ICT above, has been conducted to support my argument that, even though some of the illustrative moments for this study occurred some time ago, their influence on my learning was profound, the insights gained significant and the impact on my career incontrovertible. Not only do I 'know' what happened, I can recall what I was feeling at the time and thus the changes to myself that occurred.

### **Categorising Time**

I realise now that it is appropriate to describe the accounts provided in the appendices (2-6) as reports at one stage removed from the actual experience. This was reinforced by reviewing the handwritten journal that I had kept of the New Zealand trip. If this was to be categorised as an equation, it might be represented as  $a@t_0$ , rendering the theoretically-imbued accounts as  $a@t_1$ .

My first pass of each IM against the framework, becomes,  $a@t_2$  under this method.

Sequentially, therefore, re-visiting each IM in the context of the theory produces an equation  $a@t_3$ . In one sense this could be described as a 'learning chronology' for the study which could be argued to be important given the historical distance between the first and last IMs. Support for such codification comes again from Polanyi's work:

"Supposing we observed the motion of the planet from the earth, it would suffice to know its longitude ( $l_0$ ), in order to compute any pair of longitudes ( $l$ ) and elevation ( $e$ ) for any other time( $t$ )." (Polanyi, 1962 p. 19)

Moreover, application of these two analytical tools in a systematic and consistent manner will provide considerable rigour to the study through the act of consciously differentiating between first hand accounts of events and structured reflection on them, with all the potential challenges of distorted memory or perception as alluded to in the work of Solowski (2000).

The point is that the IMs at  $a@t_0$  or  $a@t_1$ , felt significant, but their full meaning, in my autobiography, may only be realized in this self-conscious act of reflecting on them systematically.

"Sources for reflection can therefore come from any experience we have had, and we can learn from things that have gone well just as effectively as from negative experiences. In fact, the reason that we tend to dwell on things that go wrong is that for most of the time everything in our lives goes well, and we take this for granted!" (Jasper, 2003 p. 14)

So, it is my intention to approach the IMs using a self-reflective method, where I begin to examine the impact of these events on my professional development and identity. I believe this to be consistent with the dialogical-hermeneutic method of theologians of liberation (Gutierrez 1970, etc) and redolent of Schön's (1984) work. There are two important aspects of this activity. The first is the holding up to self of a mirror, in order to look at the transformative impact of experience(s). The second is the impetus for action that arises from a critical appraisal of circumstance (Gramsci, 1971). At a theoretical level, one of the ever-present factors that caused me to select the five IMs, was the 'imperative to action' therein. Gramsci (1971) and others

have referred to this as *praxis*. West (2004) refers to this as *reflexivity*. Reflection does not necessarily cause action; the returned image may be, after all, pleasing. Reflexivity, on the other hand, demands action leading to change.

The dialogical-hermeneutic aspect of this work comes about through the act of evaluating each IM against some of the theoretical models and principles presented in the literature. This requires showing the dynamic and cyclical interaction between theoretical knowledge (i.e. that which has been gleaned from reading and other forms of study) and practical experience in the detail of each account. Metaphorically, therefore, this is an exercise in exploring the vertical structure of something akin to a bean growers' 'wigwam' - metaphorical treatment and explanation of this is to be found in the next section 3.2. It will need to be repeated for each of the IMs to ensure intra-judge reliability.

### **3.2: The relationship of my epistemology to my methodology**

Whitehead and McNiff were helpful in reminding me that my ‘methodology will in turn be influenced by your ontological and epistemological assumptions’ (2006 p. 23). This renders the quotation from Donald Rumsfeld (February 12, 2002) at the start of chapter 2, even more powerful and less foolish than most commentators would appreciate. When it is acknowledged to have originated in the work of the epistemologist, Gilbert Ryle (1900-1976), it is an even more convincing assessment of the state of a person’s knowledge.

“Ryle explains that some people understand knowledge as an empirical object of rational enquiry, that is, it can be understood by adopting a spectator approach, as a spectator analyses a play from a distance.” (Whitehead and McNiff, 2006 p. 33)

In the context of the war in Iraq and from the perspective of the Pentagon, Rumsfeld was quite right to acknowledge that from where he was standing and observing the theatre of conflict, he did not know what he did not know.

In the context of my career spectating, however, has never been an option. On the contrary, I have had to build my knowledge base through my own self-directed learning and the necessary interactions I established with peers and other pedagogical agents. My epistemology is closer to the inductive end of the spectrum and is certainly socially constructed.

“The epistemology of a social constructionist perspective thus demands that researchers do whatever they can to approximate an understanding of the life-world of social actors as they themselves understand it. It requires more than accurate reportage of the insider’s perspective, however. It demands that, as we seek to understand a social phenomenon, we must also recognize the importance of the larger social context in the construction of individual’s interpretive practices. This requires some grasp of the historical background of the phenomenon under study, as well as a recognition of the political and economic relationships within which sense-making takes place.” (Goodson and Mangan, 1991 p.11)

Whitehead takes this a little further, ‘developing the idea of living theories’ (Whitehead and McNiff, 2006 p.32). With McNiff he argues

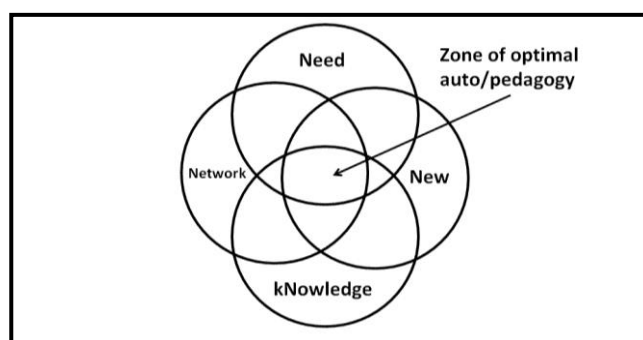
“As we practise, we observe what we do and reflect on it. We make sense of what we are doing through researching it. We gather data and generate evidence to support our claims that we know what we are doing and why we are doing it (our theories of practice), and we test these knowledge claims for their validity through the critical feedback of others.”  
(Whitehead and McNiff, 2006 *ibid*)

There is a direct correspondence with Gladwell's description of learning set out in section 3.1.4.

'We create a theory' (Gladwell, 2006 p. 9). My theory is that there is a phenomenon which I choose to call auto/pedagogy which is evinced in the reflexive narratives of my own case history or auto/biographic study.

The five illustrative moments of this study are the stories of my unknowing practise of auto/pedagogic activity. Reflexively analysing them is an attempt to make meaning from them in the context of the emerging framework for auto/pedagogy.

To explore the framework further, a research method was necessary which would enable me to analyse critically the core aspects, which I am now choosing to call 'learning factors'. The auto/biographic approach enables me to reflect on the illustrative moments as occasions when there was an overlap between these represented here by an adjusted Venn Diagram:



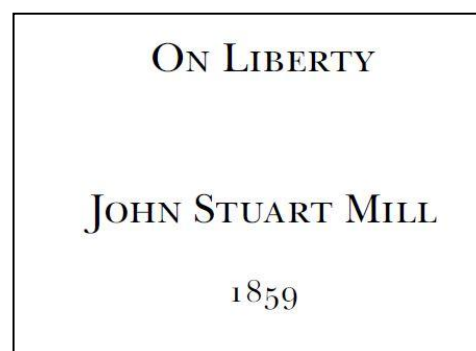
**Figure 17: Ns as a Venn**

I would argue now that an auto/pedagogic 'moment' is dependent on all four factors being present at once. They are inter-related and co-dependent. That is not to say that learning, which

is represented here as the outcome of auto/biographic activity, can only occur when all four factors are present, it is just that in my career learning has been optimal when they are.

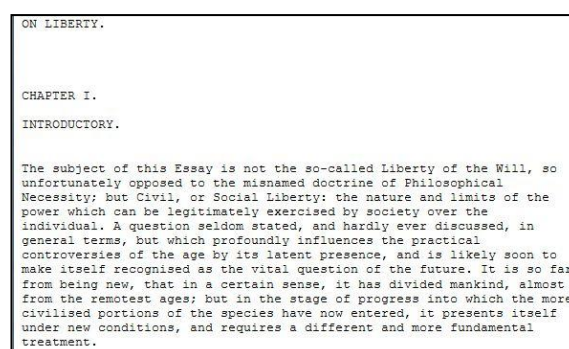
The reason why I have placed 'auto/pedagogy' graphically at the bottom of the diagram in figure 12 (above) is because, I believe now that a catalyst for such behaviour could occur at any stage of this process. It might begin with reading, it might begin with reflection, it might even begin with activity that, at first sight, appears completely unconnected. Take for example one of the great catalysts of this whole project - the discovery of an online text version of John Stuart Mill's '*On Liberty*'.

It was in trying to track this down for use with Vllth Form students that I suddenly realized the possibilities afforded to RE Teachers by access to the internet. In figure 18 can be seen a screen shot of the cover of a more, though still electronic, recent version of the same document.



**Figure 18: 2011 PDF version**

It is worth comparing the above version with the simple text based version that I stumbled across around 1996 (figure 19). The point is that I knew there was a text that was relevant from my philosophical training. I had also just discovered, 'the information superhighway' as it was known at the time and then I found my way to this very useful resource for

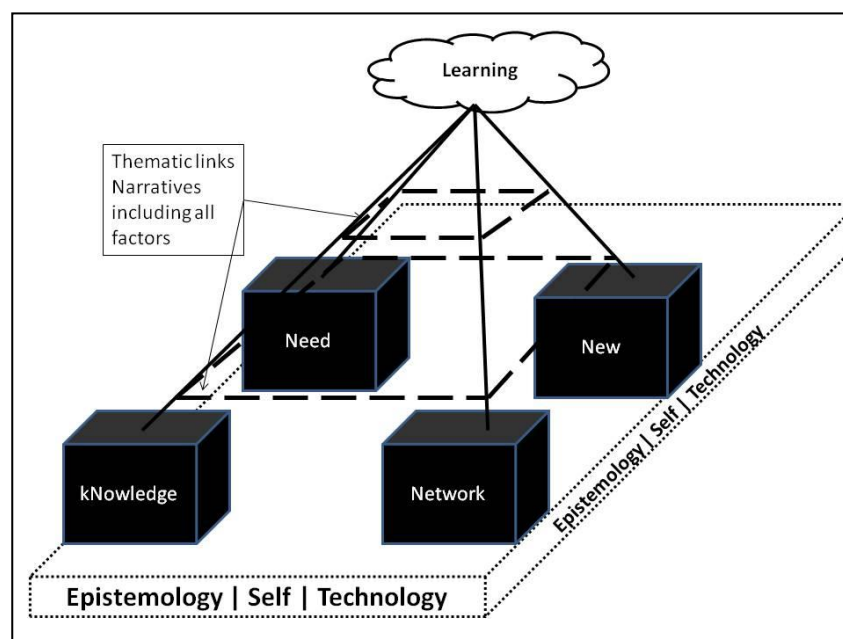


**Figure 19: Simple .txt version**

teaching. This was a discovery of great significance in the context of an RE teacher trying to provide first hand sources to A Level students on a thin budget. In terms of my career and this

thesis, it has acquired even greater significance. Clearly I had a need. I also had some prior knowledge, if only in terms of the syllabus for the course. For the first time on this occasion, I was able to exploit a virtual network - the internet - to solve the need. Moreover, it was the "what if?" questions that from flowed from this moment that were most significant. I wondered, "what if...?" Kant's *Critique of Pure Reason* was also available; "what if...?" the Bible was also available and so on. Thus, I began to apply this new knowledge in the context of research and discovery of a range of online sources.

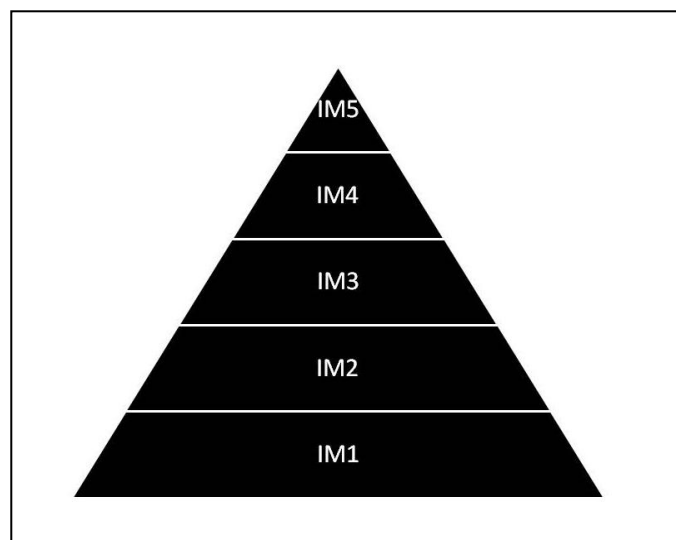
The emerging framework for auto/pedagogy was once described as being like a bean-growers' scaffold with its feet firmly planted in the metaphorical ground of the literature and then reaching up to converge at an apex. The term 'scaffold' has been deliberately used here to locate the work back to the constructivist insights of Vygotsky (1954, 1978), so important to understandings of pedagogy in the 21st Century. It is possible to argue that it is at that apex that learning occurs. This in keeping with the zone of optimal auto/pedagogy as indicated in figure 12. To show this graphically, the next diagram is offered:



**Figure 20: Bean grower's framework**

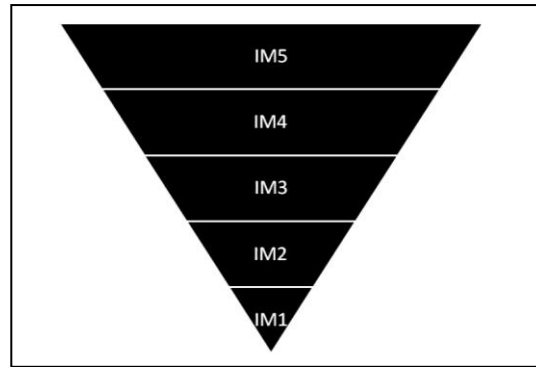


In this metaphorical presentation the literature becomes the bedrock on which the framework is established. The 'N's are the upward reaching 'legs' of the structure rooted firmly on this bedrock. Added in here are 'cross ties'. These are the narrative accounts of the illustrative moments, in this instance, which evince in all cases the four learning factors (exploration of this horizontality is found in section 4.3). The framework is meaningless without them and yet they are only meaningful themselves in the context of this framework. The diagram would have become cluttered if I had added all five IMs as cross ties in my attempt to make it three-dimensional, in keeping with the phenomenological principles outlined in section 3.1.2. So added here is a two-dimensional variation to make the point:



**Figure 21: Cross ties in two dimensions**

Given the greater level of self-consciousness about this process by the time I got to the fifth IM, the discovery of  $i^n$ PD, it would be more appropriate to represent the size of the significance of that moment, relative to this project by the inverse of this triangle, thus:



**Figure 22: IMs in due proportion**

However, it is the convergence of all the upward pointing legs that is the most significant aspect of this framework.

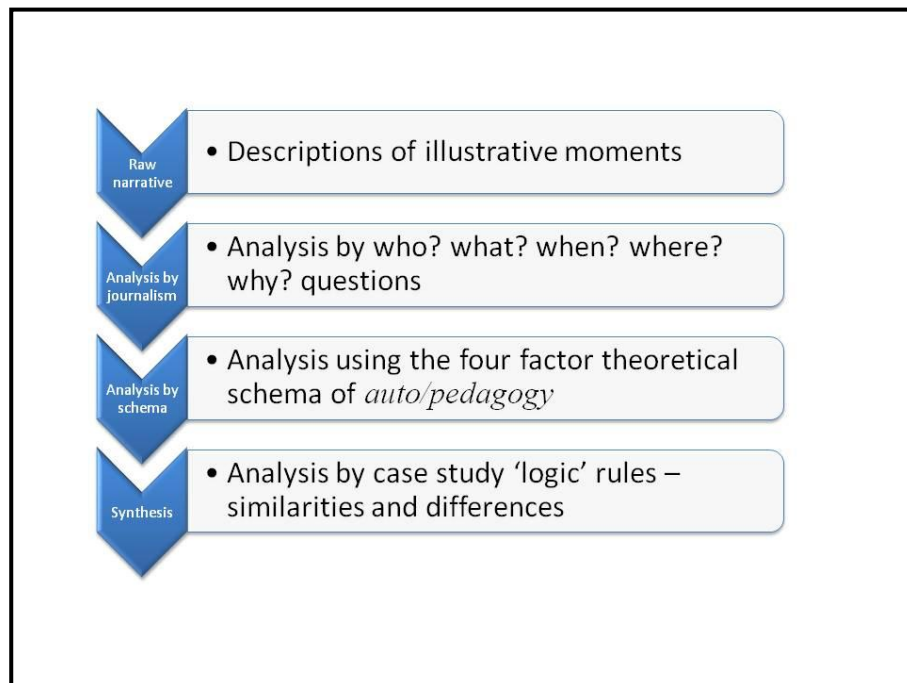
To use this theoretical framework in a way that derives meaning, it is necessary to narrate the illustrative moments in two directions:

- horizontally - as if describing the cross ties that hold the structure together (See 4.3)
- vertically - so as to illustrate how each learning factor is evinced through them (See 4.4)

Having narrated the IMs as theoretically-imbued accounts (presented as appendices) see section 4.1, it will be necessary to re-visit them, indicating the consistent aspects each has when set against a more traditional journalistic framework, i.e. who?, what?, when?, where?, why? This will feature as section 4.2. Following that an auto/biographical exercise will occur which will look at the evidence each has of the learning factors or 'N's. This activity will be set out in section 4.3. Section 4.4 will then address each aspect of *n*-ness thematically across the IMs, so that need will be addressed systematically, followed by prior knowledge and so on.

### 3.3 A narrative account of the methodology

The purpose of this section is to set out in narrative form a description of the methodology that will be applied to the analysis of the 'raw' research objects that have been created by simple recall of events across the twenty years in focus. These objects are known as illustrative moments, referred to as IM1-5. The following graphic represents the structure and linear chronology of this methodological approach; descriptions of the activities in each phase are provided below.



#### Stage 1: Narrative Descriptions of the Illustrative Moments

At this stage of the process, straight narrative accounts of the pre-selected illustrative moments are presented, in so far as that is possible. In reality, these are theoretically-imbued accounts of the IMs, selected because of their potential to illustrate aspects of the hypothesis that the research is seeking to explore. Pilot IMs, seemed to confirm that new knowledge might be generated by the interactions of knowledge, self, and technology, thus autobiographic moments

were selected which seem to provide the appropriate context or possibility of relevance. Writing about my experiences of being a Crystal Palace fan might be interesting but would contribute nothing to my knowledge or understanding of auto/pedagogy or my professional learning *per se*. So it is important to acknowledge again that the IMs are selected because of their potential to illustrate the theoretical framework for auto/pedagogy but also because they are helping to shape that theory. In that sense they are test and outcome combined, rather like Apollo 11 being the actual rocket that took mankind to the moon as well as being the exploratory device that tested the possibility. This stage is to be seen as rather like Goodmans' (1988) first level reflection (see Jasper, 2003):

"This expects your work to be largely descriptive, where you concentrate on getting down the basic facts of what happened and show some awareness of what was going on at the time. Goodman suggests that at this level you will be reflecting in order to reach given objectives." (Jasper, 2003 p. 72)

## **Stage 2: Journalistic analysis**

Having now written 'raw' accounts of the selected IMs, it is possible to acknowledge that they were produced by a simple recall method. I recounted them as if I were in dialogue with someone asking me, "what happened?" In this next stage, therefore, the intention is to organise these accounts into a coherent pattern so that correlative features start to emerge. If it appears to be the case that patterns are emerging, it may then be possible to re-visit the theoretical underpinnings of the study in an attempt to bolster the rationale for it and strengthen further claims as to the likely reliability of the study.

The choice of the term 'journalistic analysis' is a deliberate attempt to signpost further the retention of the descriptive level of the approach at this stage. Journalists, reporting events, follow a methodical pattern with the intention of drawing their readers/audience as close to them as possible but stop short of coming to conclusions themselves. These are left for the

readers/audience to draw for themselves. Thus they ask questions like “Who was present?” “What happened?” “When did it happen?” “Where did this occur?” “Why might it have happened?” A forensic scientist, at the scene of a crime will get even closer to the detail and will report the findings of their research. Whether or not a crime has occurred is a question that is left to judge and jury. Here the organisation of insights is being undertaken to establish whether there is a case to be made for the existence of the postulated phenomenon of auto/pedagogy. Are there factors that specifically contribute to a moment in auto/pedagogy? Are they always required? Could the phenomenon occur without them? What is the specific role played by my self in this context? Would auto/pedagogy have emerged without my specific contribution and so on?

Analogously, was the discovery of auto/pedagogy contingent on the particular conditions, the pre-dispositions of the discoverers or was it a phenomenon waiting to be discovered just like the penicillin of Fleming’s famous ‘accident’?

“One of the most important medical advances in history began by accident. On the morning of September 3rd, 1928, Professor Alexander Fleming was having a clear up of his cluttered laboratory. He was sorting through a number of glass plates that had previously been coated with staphylococcus bacteria as part of research Fleming was doing.

One of the plates had mould on it. The mould was in the shape of a ring and the area around the ring seemed to be free of the bacteria staphylococcus. The mould was penicillium notatum. Fleming had a life long interest in ways of killing off bacteria and he concluded that the bacteria on the plate around the ring had been killed off by some substance that had come from the mould.” (Trueman, 2010  
[http://www.historylearningsite.co.uk/alexander\\_fleming\\_and\\_penicillin.htm](http://www.historylearningsite.co.uk/alexander_fleming_and_penicillin.htm))

### **Stage 3: Analysis by theoretical framework**

This stage is redolent again of Goodman's (1988) framework - in this case second level reflection - as set out by Jasper (2003 p. 73). She writes,

"You will be using theoretical concepts to explore and explain what has happened, and to provide you with further insight and understanding. In short you will be creating your own

knowledge base by applying theory to practice, and considering theory in the light of practice." (Jasper, *ibid*).

I like this description since it resonates well with the dialogic nature of Gutierrez's hermeneutic circle.

At this third stage of my process (and please note that my second stage is different to that of Goodman (1988)), the intention is to re-visit the raw narratives arranging them according to the four factor model that is the principal object of this research project. This model has remained fixed in the process for some time now and is re-presented here for ease of access:

**Table 4: The four factor framework**

Factor	Description	Code
1.	A self notes that it has a self-referential reason for study,	N <sub>1</sub>
2.	The self utilises its prior knowledge, skills or understanding to access appropriate digital learning resources	N <sub>2</sub>
3.	The self actively participates technologically in the social co-construction of meaning through focused and relevant communities of practical or professional enquiry (after Wenger, 1998; 2001 – see Smith, 2003)	N <sub>3</sub>
4.	The self critically evaluates these episodes and is able to apply new synthetic understandings in relevant practical or professional contexts.	N <sub>4</sub>

Thus it might be appropriate to arrange the data using a table such as the one below.

	Evidence of need	Evidence of knowledge	Evidence of networking	Evidence of new activity
Illustrative moment 1				
Illustrative moment 2				
Illustrative moment 3				
Illustrative moment 4				
Illustrative moment 5				

The table above was constructed at a moment in time and I wish to make two reflective observations about it. First, I constructed it while I was trying to demonstrate the 'scientific' nature of my study and had fallen into what might be termed the quantitative fallacy. By this I mean that it is fallacious to tabulate things for the sake of it when they are not in keeping with the research values that underpin the work. Second, it was constructed before I fully appreciated Whitehead and McNiff's (2006) work which eschews such scientific practice and yet remains appropriately coherent, epistemologically sound and appropriately theoretical. I leave it in the text as an historical artefact and as a benchmark against which to show the distance travelled in my thinking and writing. It is left blank deliberately to signify the potential but also to represent the provisionality and necessary incompleteness of the task (see McDonagh, 1979 and Whitehead and McNiff, 2006).

That Newton was able to replicate the falling of an apple, gave rise to what is now seen as the fact of gravity. Arranging my data to show similar replication of factors, contexts and circumstances is specifically intended to increase readers' confidence that the hypothesis is worthy of consideration. Gravity remains a phenomenon that can be experienced even if it has no empirical characteristics; the hypothesis of auto/pedagogy can be similarly described – though yet to be proved. This approach finds support again in the second level reflection advocated by Goodman (1988),

"Goodman suggests that reflection at this level shows awareness of the implications of both personal and professional values in addition to identifying the rationale and evidence basis of actions taken." (Jasper, 2003 p. 73)

Whilst helpful in shaping these reflections, I demur from Jasper at this point since my framework also signifies the need to take action, not just reflect on what has been 'actioned'. This is the imperative of *orthopraxy*, as opposed to orthodoxy - in professional terms.

Moreover, her account of Goodman's third level of reflection takes reflective practice in a different direction. She notes that,

"... this takes the reflective activity one stage further by relating the parameters of care to societal norms and constraints, such as health policy, health economics and resources."  
(Jasper, 2003 p.75)

My work is more concerned at the next stage of reflection by looking at the 'logic' that underpins the IMs. In some ways it is contrastingly introspective by comparison with Goodman via Jasper's extrapolation to the bigger picture. In short, my fourth stage is designed to help me find out more about me than to find out more about them.

#### **Stage 4: Analysis by case study 'logic' rules**

Despite the positioning of this work at the qualitative end of the continuum of research methodology, it draws support for its claims to validity from social science methods, one of which is the use of case studies. Although, the illustrative moments are not recorded in the manner and style of a traditional case study, they were subjected to the same rigorous investigative approach. The final stage of the research process was therefore the analysis of the five IMs to explore their:

- Coherence as a set of signifiers,
- Patterns of similarity and difference,
- Signification of underlying and enduring logic and,
- Likelihood of replication in other contexts, settings or with other people.



## Chapter 4: An auto/biographic analysis of five illustrative moments in my career

### 4.0: Introduction

As indicated in chapter 3, this chapter represents the formal analysis of the five illustrative moments using the auto/biographical method that has been adopted for the study. My descriptions of the IMs have been included in the appendices 2-6 to facilitate cross referencing. They are to be treated as  $a@t_I$  where  $t = \text{time}$ . I have, however, also included as Appendix 1 a scanned copy of a hand-written journal, compiled as indicated elsewhere whilst I was in New Zealand. This is to be seen as  $a@t_0$  since it was a live document and is closer to being accorded the status of 'raw narrative'. The quantification of the other appendices as  $a-e@t_I$  is because they are the outputs of the systematic stream of consciousness into which I immersed myself so as to produce some raw material on which to work. I acknowledge, on the consistent advice of Prof. Hadfield that they are not theoretically neutral; rather they are theoretically-imbued moments precisely because they have been selected because of their 'fit' to the project (see section 3.1.6).

In order for this chapter to make sense, it is advisable to start by reading the IMs in chronological order. Appendix 1 is worth reading as an actual historical artefact. Appendices 2-6 are to be read without referencing to the colour-coding that has been super-imposed on them as part of the reflexive process discussed in section 4.2 below. They should be read as autobiographic narratives.

The outputs, outcomes and effects of being inside these IMs are addressed by the second stage of my process which looks at each IM from a journalistic point of view using tried and tested questions such as: who?, what?, when?, where?, why? An interesting cross reference for this is

Gibbs' work (see Jasper, 2003 pp. 78-79). In that schema, the questions chosen to stimulate thinking are:

"Where were you?  
Who else was there?  
Why were you there?  
What were you doing?  
What were other people doing?  
What was the context of the event?  
What happened?  
What was your part in this?  
What parts did other people play?  
What was the result?" (Gibbs, 1988 in Jasper, 2003 p. 78)

Helpfully, Jasper (2003) presents a number of models such as this for reflective practitioners to use in the context of the health and helping professions. Consistent in each of the models e.g. Gibbs (1988, see below), Goodman (1984, see below) and Rolfe et. al. (2001, see below), is the requirement to pose of oneself questions as stimuli to trigger reflective processes. What sets auto/biographic research methods apart from this reflective practice model, is the absolute requirement to convert questioning into action and this is what draws me back to the dialogic-hermeneutic of Gutierrez (1971) on the one hand and the reflexivity of West (2004) on the other.

At the third stage of my process I reflect on the IMs thematically, in keeping with the framework for auto/pedagogy that is emerging from this study. Thus I have a divided section 4.3 into four, enabling me to carry out a systematic reflection on the contribution of each IM to  $N_1$ ,  $N_2$ ,  $N_3$  and  $N_4$ . This is the 'horizontal' approach signified by the bean-growers wigwam, as set out in chapter 3.2.

At the fourth stage of the process I reflect on each of the IMs for what they contribute collectively to the development of my thinking, knowledge, skills and understanding. This is the

vertical approach enunciated in chapter 3.2. It sets up the opportunity to set out some summative reflections which are recorded in section 4.5.

#### **4.1: Stage 1: Descriptions of the IMs ( $a@t_0$ and $a@t_1$ )**

"In every case, the form chosen, the style used, is expressive of the person writing and constitutes an essential part of the autobiography." (Abbs, 1972 p. 20)

In this first series of self-consciously theoretical reflections on the IMs, I will be writing in a way that is expressive of myself and I intend also to use the version of Gutierrez's (1971) reflexive cycle I set out in section 3.1.4. So I will look at each IM for what it says of the interpretations I made of the context, the readings (scriptures<sup>51</sup>) and actions that arose from reflections on the challenges I faced during each moment. I intend to tease out also what impact this had on my career development. This will be a first level hermeneutic. I imagine that this is similar to what it would be like to write an autobiography. I am retrospectively interpreting events whose origins and motivations were, at the time, accidental. In so-doing I am operating in keeping with another tenet of Abbs' work:

"The central concern of all autobiography is to describe, evoke and generally recreate the development of the author's experiences." (Abbs, 1972 p. 7)

I am also happy to note at this stage that these reflections are very much part of the formative work of the hypothesis, though they can never be entirely disassociated from the underpinning framework because they would not have been selected as IMs had they not passed the reflexive process leading to their inclusion (see 3.1.6). This is similar to that described by McDonagh as, 'the completed and unfinished task.' (McDonagh, 1979 p.13) He writes,

"In so far as autobiography in its personal and social dimensions enters into theological work, it underlines theology's incompleteness and provisionality." (McDonagh, 1979 *ibid*)

Here, too, the work is incomplete and provisional. At this stage I have no way of knowing if it will become complete and propositional.

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<sup>51</sup> By this I mean the texts that were around to support my professional learning in much the same way as the organic intellectuals in South America used the scriptures to illuminate their own lived and contextual experiences.

### 4.1.1 Reflection on IM1

Looking back on the first moment, it is hard not to come to the personal conclusion that this was a pivotal moment in my career. Once I had answered emphatically 'yes' to the question, I had stepped metaphorically onto a moving train that is still not at the end of its journey. In a sense, I had already been to the ticket office and checked in by engagement with gaming technologies as a student and in the very basic word programming training I had experienced as a new entrant to the teaching profession (It would be more appropriate to use the term 'probationer' as this was the era before newly qualified teacher status, but this might need explanation for readers of this thesis who may not have even been born when I started out on this work<sup>52</sup>).

### Context

The context could not be clearer and, as shown in appendix 2, I can even cite the date when this moment occurred. I can even now picture the room in which it took place and I can remember some of the other things that happened on that day which, as far as I am concerned, justify my memory of 'that' moment. I recall the head's first question, "So what do you want to know?" He then looked out of the window and waited for me to speak. This was part of his eccentric interview technique. He liked people to feel uncomfortable and observed how they operated under pressure. I know this from subsequent work with him on a variety of appointments both as his head of RE and then as an elected teacher governor.

I recall being shown around the school and entering the room of the head of Art - who turned out to be an existing governor and fellow old boy of my old school. I know this because he recognised my prefects' tie which, in an act of wanton superstition, I had worn as a good luck

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<sup>52</sup> This is a deliberate reflection borne of an experience in 2004 with the second cohort of Teach First trainees. I was asked to present a reflection on the beginning of my career in teaching and I alluded to the fact that this was in 1984. One of the participants approached me during the reception and was pleased to tell me, he had been born in that year. It was five years after that this whole project began to emerge.

charm. I loved my time at school and carry memories from then with me too. That Geoff recognised the tie was probably coincidental more than causal in my appointment, though he was there later in the formal governing body interview. I also recall bumping into the head of Geography as I escaped from the 'holding room', for a brief moment to visit the facilities. He, too was an Old Josephian, one of whose brothers was in my year.

I can remember being required to fill in the Kent County Council application form, after I was appointed, in order to tie up the loose ends of recruitment; further evidence of the head's maverick approach to procedures. I can even recall a discussion with him about the Channel Tunnel rail link which was a hot local political issue at the time as its planned route was through much of the beautiful Kent countryside that has become our home. It is amazing to think that it was such a big issue then but has become an integral part of Kent life in the 23 years since that moment. A bit like technology in my life, really.

### **Readings/'Scriptures'**

At the time I was reading extensively around the vision and values of Catholic education. On being appointed, I began to cast about for readings on IT. There simply was not the glut of material that exists currently, so I tended to focus on manuals and self-help guides that came with each new piece of software and I learned very quickly the value of <F1>! Most programs, located their 'inline help' behind this button. A few had a command <help> if you went back into the operating system. Incredible as it may seem, this was at a time when there was still a range of operating systems to choose from and MS-Dos was one among many - only to become the ubiquitous Windows Operating system a few years later.

Evidencing this is impossible since I had no idea that I would need to keep the manuals as a record to be consulted in years to come and as academic references so I have to request that my word is taken for it. Reflexively, however, the fact that I made the progress in learning that I did must in some way be warrantable evidence in its own right of my engagement with auto/pedagogic strategies. I wanted to learn and sought out opportunities wherever I could, even in very informal conversations with friends and relatives. For instance, we were welcomed to the house of a couple my wife had met through the National Childbirth Trust - an obvious local network to join in with as an expectant mother moving to a new area ten weeks before the birth of a child - Coincidentally, her husband was the Head of English at St. Simon Stock School and although I assumed he'd been there for years, he was in fact only in his first term as subject leader and was finding his managerial feet too. We had a lot in common, not least our need to get up to speed with technology and he showed me some of the rudimentaries of the disk-driven file systems that our RM computers used.

## **Actions**

As a catalyst for change and learning, this was a truly critical incident and it spurred me into a few years of very intense activity. The more I learned the more I wanted to learn. In practical terms, the first thing I had to do was get access to a computer quickly. My request for one from the head was greeted with enthusiasm, though I had made what I now realize was a good business case, based around the need ( $N_I$ ) to re-create all the schemes of work for the department. It was not long before the power of the technology had beguiled me into buying my own one for use at home and I bought a second hand IBM PS2 with a dot matrix printer from my sister-in-law on which were installed some programs. For some reading this, such a statement will appear to be obvious. However, at the time, a 20mb hard disk with programs pre-installed was revolutionary! As indicated in the text of the IM, my first computer came supplied with a

disk on which were the programs and a separate disk for storing files created. At each switch on, it was necessary to upload the program to the computer's virtual memory and then insert the second disk to save the work. Having the programs 'on board' was time-saving and cost-effective.

## **Impact**

From the vantage point of distance, and with the benefit of about ten years of organised thinking about this event, it is hard to imagine that there is a moment in my career that was more critical. There have been moments that have been professionally more challenging and even career threatening, but none that so dramatically changed the direction of that career 'while I was sleeping'. (Friedman, 2006 p. 1) I love this phrase of Friedman, since it encapsulates perfectly the experience I had of setting out to learn a new piece of software or some new commands in the operating system and then two-three days later realizing that I was on top of it, not having understood how I got from point A - ignorance - to point B - enlightenment. This happened time after time, though the example I cite in IM1 of the learning of *Logistix* stands out most clearly in my mind. I can recall one moment, when I should have been concentrating on my year 11 form, and was playing with an old Apple II that had been donated to the school. There was no software on it and it was not therefore operable as an end user device - 'what a waste', I thought. It dawned on me in my daydream that each of the 'software houses' had its own word processing package, calculations package (spreadsheet), database package, drawing/graphics package and some form of entertainment software. I just wish I had come up with idea of an integrated office software bundle before Microsoft did!

Reflexivity means now that I approach the learning of a new piece of software, skill or technique with the confidence that however difficult it may appear at the outset, with the hard work that is



necessary and the resilience I have developed, in two to three days time, I will be on top of it, conscious that learning has gone on 'while I was sleeping'.

"Professionally, the recognition that the world was flat was unnerving because I realized that this flattening had been taking place while I was sleeping, and I had missed it. I wasn't really sleeping, but I was otherwise engaged." (Friedman, 2006 p. 8)

Professionally I wasn't really sleeping either, I was just engaged in getting a department back up to fitness for purpose, juggling this with bringing up a new family and the daily pressure of learning enough to teach an A Level syllabus that I had not even seen before. Whilst well out of scope for the present study, much contemporary neuroscience would suggest that learning processes do continue while we sleep suggesting that this is more than just metaphorically true:

"There is another class of reactions with a nonconscious origin shaped by learning during one's development. I am referring to the affinities and detestations we acquire discreetly in the course of a lifetime of perceiving and emoting in relation to people, groups, objects, activities and places to which Freud called our attention. Curiously, these two sets of nondeliberate, nonconscious reactions - those innate and those learned - may well be interrelated in the bottomless pit of our unconsciousness." (Damasio, 2004 p. 48)

I can only guess now at the impact on my learners. I did not systematically capture feedback or evaluation data, but I did sense that they had come to expect good quality learning materials and that they appreciated the efforts that went into producing them. What made this positive was that I found it quicker to do this using technology than the traditional cut and paste methods of yesteryear which resulted in relatively tatty looking materials. I noticed soon after that colleagues started to follow suit and to produce good quality teaching materials themselves.

#### 4.1.2 Reflection on IM2

With the benefit of hindsight this was audacious. I should be more grateful to Bob Bowie than I have been hitherto. What we achieved was pretty amazing on thin prior knowledge (N<sub>2</sub>). Each time I set about reflecting on this event, I am transported psychologically and emotionally back to room 12. It was a dark and dreary room really and I would never have imagined that it would become the teaching base for me that it did. It was already bearing the hallmarks of a great resource base for learning since I had previously taken the step of paying for the shipment of a library of theology books from Ireland that had become available through the death of a relative of our Deputy Head. I had also acquired 20 years of accumulated editions of the Catholic weekly newspaper, *The Tablet*. These had come from a priest friend of mine and I had used them regularly as a self help study aid for the A Level students researching for their extended essays.

I was not conscious at the time, however, that room 12 was becoming a learning centre as opposed to a classroom. Prior to the RE department taking it over, it had been a multi use room for children with special needs and when I went to the school it was a science lab. This meant it had lots of power points around the walls, later to become extremely useful. It was also near the office I was given to run the department which was itself next to the Chaplain's room. The office backed onto the wall where the 'library' was situated. Outside of any success I may have had with technology, I am proud that in my time there, the intellectual capital of the pupils was raised considerably by the establishment of this facilitated model of learning. What this way of working allowed was for me to focus on the development of resources for learning and it also gave me a secure venue for the citing of a network of computers.

It is a fact that I benefited from the support of the head. He had seen what I had been able to achieve with the judicious use of department funds in and around technological procurement so when three lots of £10,000 became available to procure departmental hubs, he was open to suggestion that the RE department should get one. Maths got one and so did English. I recall him saying to me, "...now you've got them, I'd better see them being used!" Such a gauntlet being thrown down was more than enough motivation to get out and find things to do with them. In IM2, I have hinted at some of the software I procured to use with the pupils on my new network. I took some risks like installing a disk driven program on all the computers even though I really had only one licence. At that stage we were not connected to the internet so tracking would have been difficult.

*'The Last Week of Jesus' Life'* (Lion Publications) became the first sign for me of how I could use technology to engage otherwise disaffected boys. The mobility and flexibility I saw with the technology inspired me to look for even more flexible and mobile resources. In section 3.2, I have rehearsed what I will call the 'John Stuart Mill incident' which was pivotal in causing me to wonder about what else was there and available to make my life as a teacher easier and the rest of my autobiography indicates that the creation of RE-Net was the start of something really quite significant.

## **Context**

The context in which this IM took place was, therefore the need ( $N_I$ ) as a head of department to find stimulating and interesting ways of getting boys to work on their GCSE studies at all levels. Looking back, I had particular concerns about those boys who were on the D/C borderline. I needed to show that we were getting the pass rate up and I knew that the roneo-vickered notes that we produced were the contemporary equivalent of 'death by powerpoint'. They hated them.

What we needed was something dynamic, 'cool' and exploitative of the type of technology that was grabbing their interest. Some of these young people were top level gamers - even in global terms.

I was very lucky to have a great team - not just Bob - it was a strong department which had grown over time and which had enabled me to concentrate and expand our horizons. I did not have to do much by way of behaviour management and the team were willing to experiment and try new things just as much as I was. They took initiative and I used the departmental structure to give opportunities whenever I could. This meant that Bob came into a context where innovation and creativity were expected and he also arrived at a time when I was really keen to push on with the technologisation of the department - 'a perfect storm'?

### **Readings/'Scriptures'**

It is a fact of history that Bob asked me to buy a copy of *HTML for Dummies* - I wish I had kept the receipt as evidence. A google search shows that there was a book of such title published in 1996 which does, however, provide support for my memory.

Eds. Tittel E. and James S.N. (1996) *HTML for Dummies* IDG Books: Foster City CA:

The disks are still in existence of the website that Bob created. I have them, though I have no disk drive capable of reading them now! This, is an indication of just how far and how fast technology has moved in that time. The 3.5" floppy disk is a thing of the past and yet its existence at the time was utterly revolutionary and game changing. The website Bob created was contained on four floppy disks. It was a text-based artefact but it was just a whole lot better

than the cyclo-styled sheets we gave out and it gave access, above all, to learning materials on a computer. It made the RE department 'cool'.

## **Actions**

Whether it was a matter of pride or again natural inquisitiveness that prompted me to action is open to debate. What I know is that I was prompted to learn to code myself so that I could also create web pages. I watched Bob over his shoulder and observed the rudimentaries. I also borrowed the book for a while and picked up a few tips that way. It is worth noting that I understood only too well, the need to save files in the correct format. In those days, coding was done in simple text editors like 'notepad'. This was exciting because it was as close to the heart of making machines work as I had ever been. There was a real sense of thrill when the coding was complete, especially if you then opened up the .htm file in a browser and watched as the page started to load as intended. For me, the enhanced thrill came when something hadn't worked and the page didn't display properly and it was necessary to go back through the code and correct the error. Clicking the <refresh> button was almost exhilarating!

I found that I could work for hours on web pages without a break because it was great fun. Linking pages together and building an architecture for the site was also fascinating as it really forced us to think about how we would best arrange the data we wanted the young people to see. Who knows where we would have ended up if I had not taken the chance to move into Higher Education in 1998. By that time we had a fully functioning intranet running in room 12. We had added value to the original site by incorporating pictures that one of our colleagues had brought back from a school trip to the Middle East, including Israel, Palestine and Jordan. To do this we had to learn how to create image banks and to store the pictures appropriately so that we could point to them in the browser using the <img src = "?"> command.

The fact that I had, by then several years experience of organising folders and file structures meant that I had a lot of prior knowledge on which to draw (N<sub>2</sub>). I would also argue that the passion for learning and my engagement with it was certainly auto/pedagogic, even if I did not know it at the time.

Moving to Christ Church gave this whole learning process a further boost. I arrived just at the point when Phil Poole was trying to increase the online offer to students on the PGCE Route to QTS. He was keen to support the innovative work I had been doing at St. Simon Stock and gave me access to a number of tools which aided the process. Here I learned about html editor software which was WYSIWYG and had a number of pre-programmed html tags. This certainly speeded up the process. Some time after that I was given access to MS-Frontpage which was Bill Gates' attempt to control web coding and became the default tool for people running pages out of CCCU. As an approved web author, I was also invited to attend training sessions and at one of them - around 2002 - we were given a workshop on a new scripting language called PHP. It is PHP that drives Facebook and is arguably one of the most significant technological developments of the last decade<sup>53</sup>. All this would appear to be evidence of N<sub>3</sub> in my autobiography.

## **Impact**

It would be fair to say, looking back, that I was learning fast. Not only was I, in the context of my career, learning to lead and manage on the hoof, I was learning fast about technology.

Learning I developed at the time (IM2) has stayed with me till this day and was carried forward into work subsequently undertaken on the TTRB and, of course, when we used the RE-Net

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<sup>53</sup> See section 2.4 where I talk about how my professional knowledge around PHP became useful for some volunteering I undertook in 2008 and which vice versa has enabled me to move on professionally - more evidence of the dialogical and cyclical nature of the auto/pedagogic process.

platform as the basis for creating the TDA-funded networked learning community from 2005-2010. Skills acquired then are used today for maintaining my own web presence, for running a *Moodle* site and for supporting marketing activities around my own and my children's hobbies and interests.

Moreover, I learned a lot at this time about digital photography - especially file formats for images. I began to understand more about how much more 'data' was contained in a photo than a piece of text and I also reinforced prior knowledge (N<sub>2</sub>) about the need for organisational accuracy and effectiveness. Getting one character wrong in a filename meant that a page wouldn't work. This gave me pause for thought about the power of computing on a daily basis and led me to further inquire about the great urban myths about technology, like the one about the missing comma in a line of code which brought down Apollo 13. I still find it hard to reconcile the fact that all this was going on nearly thirty years after Neil Armstrong first set foot on the moon. It also gave me pause for thought about how the choices I had made at school pushed me down a career pathway that precluded formal learning in science and technology. Software engineering is really good fun and I realize now that the 'liberal arts' direction of travel that I embarked on at the age of 14 meant that for over 20 years I missed out on the fun of making things. Serendipitously, on looking for another reference in Isaacson's authorised biography of Steve Jobs, I came across this observation,

"The creativity that can occur when a feel for both the humanities and the sciences combine in one strong personality was the topic that interested me in my biographies of Franklin and Einstein, and I believe that it will be a key to creating innovative economies in the twenty-first century." (Isaacson, 2011 p.xvii)

I am not for a moment suggesting that my autobiography should be evaluated alongside the narrative accounts of Franklin or Einstein but I do find it interesting that the 'mathophobia' to which I refer in IM1, and which was a driver for some of my learning of spreadsheet technology

did inhibit my progress in the sciences - looking back. Ironically, it was the fusion of technical know how with humanities-based subject knowledge (At the time of IM2, I was after all a religious education practitioner) which provided the creative energy for RE-Net. At that time a considerable portion of the GCSE syllabus was spent on the words and works of Dr. Martin Luther King Jnr (1929-1968), and I used to read for pleasure his lesser known theories on science and other aspects of the human condition:

"Science investigates; religion interprets. Science gives man knowledge which is power; religion gives man wisdom which is control. Science deals mainly with facts; religion deals mainly with values. The two are not rivals. They are complementary." (Martin Luther King, Jr. 1963)

It is worth re-stating here that there were moments around this time when this did feel like I was making magic - a phenomenon about which contemporary RE specialists needed to have a view. Whether others saw our efforts in this way is open to question but I can really empathise with the opening words of Naughton's (2000) book:

"... And as the picture builds the solitary man smiles quietly, for to him this is a kind of miracle." (Naughton, 2000 p.7)

I wasn't expecting to find in a hard-nosed scientific study of the history of arguably the most mechanistic of all inventions, the computer, a writer prepared to use the language of my 'home' discourse. But why not? After all, this is a multi-disciplinary study.



### 4.1.3 Reflection on IM3

Professionally speaking, no moment in my autobiography has been more reflected on than this. I used it as part of the formative process for the study and I refer to aspects of it extensively in other sections of the thesis (see e.g. chapter 2.1 on Polsani's influence on my epistemology and in chapter 2.3 on the development of the framework)

One of the reasons for this is that although academic tourism (i.e. the practice of travelling to places far and wide to participate in conferences) is a well-known phenomenon, I consider myself lucky that I was granted permission and funding to attend ICCE 2002. There was some audacity in tagging a week's holiday onto the trip so that I could explore New Zealand, and I had a great time. My learning was nonetheless rich, profound and abiding. Happily, on this occasion I have plenty of firsthand evidence of the value of the trip and I was delighted to find in my notes the handwritten statement of what I had learned (see appendix 1) which I must have jotted down in the airport at Auckland before embarking on the flight home.

My erstwhile head of department and close friend, Prof Kit Field, used to tease me, that I was the only person working on e-learning that had to physically travel to the other side of the world to learn more about the phenomenon. 'Surely', he argued 'you could do all this from your desk'; meaning, of course that the world was already connected via the internet, obviating the need for international travel. Nonetheless, such was the enormity of what I learned that I would not have missed it for the world. I acknowledge, however, that this does beg the question of the rectitude of e-learning only modes of study. It is why I dropped the notion of e-learning in my discourses - I can evidence (see Appendix 1 and 2) the profundity of learning in multi-modal settings.

This trip does, therefore, conform to any definition of a critical incident (See Jasper, 2003). It has outstanding significance in my life and career and is pivotal in this study.

## **Context**

The actual pain of travelling non-stop for thirty-six hours would be sufficient visceral evidence of having been there! The jet lag I experienced on return coupled with the emotional roller-coaster that was the trip left me with feelings of exhaustion that were very real and I can still recreate the feeling of the fatigue that descended on me once home, showered and ready to dispense gifts to the children that I had collected on my travels.

The reason for the trip was purely educational. I wanted to immerse myself in the discourse of computerised education, as a learning process by which I could lead on the E-China bid. Many of the 'greats' of educational technology were present at the conference. Marlene Scardamalia, Alfred Bork, Bob Lewis and, as referenced in IM3, from the UK, probably e-learning's principal proponent at the time, Gráinne Conole. I would argue now that the process of discovering the ICCE 2002 conference was both an outcome and a part of an auto/pedagogic process.

When tasked with leading on the E-China bid, I had no idea where to begin and was thrown back on my prior learning (N<sub>2</sub>). I had to use the meta-cognitive search skills I had been developing to think through the places one might look for inspiration and wisdom. I had a list of names from the Dean as well as contacts that I was provided by James Learmonth (mainly people in the British Council and other experts in overseas education) but that was about it. I can recall doing desk-based research using terms, for example,:

- Education in China
- Teacher training in China

- Chinese education
- Chinese teacher educators

It was, however, a structured reading of the ESCALATE website that pointed me to the conference and gave me the thought that to attend would put me in touch with the very people with whom I needed to liaise.

## Readings

I still retain the disks that were provided at the conference. All the papers were available electronically which gave rise to some amusing encounters. In their home countries, most of the participants had clearly ticked the same box as me on the conference registration page which gave the choice of an electronic or paper-based version of the proceedings. On arrival they were keen to follow each paper from a hard copy and were visibly irritated with the organisers who kept saying, 'No! Sorry! You ordered an electronic copy'.

On that disk are some of the papers that have been formative in the development of this thesis, most notably Polsani, (2002, 1) and Lewis (2002). Periodically, I spin the disk and relive the experience. Even now, at times when I need some inspiration, I also dig out the photographs as an *aide-memoire*.

In this photograph, it is possible to see the entrance sign to the university at Palmerston North where I met with Marion Court, Bill Anderson and Mary Smith. Serendipitously, it was Bill who was putting together a major work on e-learning published about six months after my visit (see Moore & Anderson et. al., 2003).



There is something quite powerful about the visual images that are collected during a lifetime. I was very glad that I borrowed a digital camera from the university for this trip as it does reinforce the fact that I was there. I carry some memories as mental images but the albeit small number of pictures that came back with me on 'floppy disks' do help keep the memories alive. Again, it is interesting to reflect on how technology has changed since then. That camera had about enough battery life for fifty pictures and I was only able to charge it once and that was at Massey University in the ICT department where they had a collection of chargers. Compare that with the tiny batteries that are in modern cameras which can sustain the capture of hundreds of photos that are stored on media a fraction of the size of the disks I carried with me. By the time I went to ICCE 2005 in Singapore, I was dependent solely on the camera on my XDA II but still filled up all the solid state memory with images that I have used in professional contexts ever since.

## **Actions**

The diagram I constructed in Takapuna (see pp 334 and 335) is evidence of direct action that I took as an outcome of the reflexive process in which I engaged at the time. It stands as a genuine artefact of a piece of auto/pedagogic work. The iterative nature of the hand-drawn version (classically in the style of a 'bag of a fag packet' drawing) followed by its tidying into a .ppt slide is indicative of the thought processes I was going through at the time. As can be seen, I was constantly trying to apply learning I was acquiring by the minute into professional settings where I would one day be leading the learning. It is not an arrogant claim to say that much of this thinking made its way into the policies, procedures and practices we set up for *iteach* and some of which are still in train in the new release of that programme: (see <http://hiberniacollege.com/schoolofeducation/hibernia-college-uk/>)

## Impact

The impact on me of this trip is incalculable. In practical terms it spawned two pieces of direct work: A CPD report for the University as an output of a funded process of professional learning; and a conference workshop which I delivered to the Faculty's annual conference in February 2003<sup>54</sup>. Much of what I was writing at the time focused on N-Learning, a term I learned from Polsani (2002, 1). It was short step from that to the metaphor of *il*earning that I started to write about and led to the invited presentation on *i*PD that I gave to UCET in 2006. Both Jones (2006) and Isaacson (2011) confirm that 'while I was touring' Jobs and Co. were launching the *i*Pod. That really is synergy.

"We knew how cool it was, because we knew how badly we each wanted one personally. And the concept became so beautifully simple: a thousand songs in your pocket." (Jobs, cited in Isaacson, 2001 p.390)

Although written some ten years later, this quotation cites Jobs from around the time I was in New Zealand and above all, though the term is inappropriate for someone of my age to use, what I saw at ICCE 2002 was 'cool' and I knew instinctively that this was what I wanted learning to be like, for children, certainly but also for teachers. As well as having a thousand songs in my pocket, I realized standing there in North Harbour Stadium in Auckland that technology would now allow people to carry all they needed for career development learning in their pockets. It was here that a Japanese delegate lent me his laptop so I could connect over wireless to my e-mail. It was on the road trip that I spoke with my family by cell 'phone 12,000 miles away by the power of satellite technology and realized that the physical world was getting smaller in inverse proportion to the expansion of the learning world. All one needed was a node on the network and that, with apologies for the emphasis, one could carry in one's pocket.

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<sup>54</sup> I called this workshop *Hakas Huka, Holism* (Hughes, 2003)

Reflecting now on this, is fascinating. The node in my pocket is called a Blackberry, it connects me to the internet via the Orange network and I synchronise data and digital artefacts between it and my PC using the Apple itunes software. It carries about a thousand songs. It carries about 500 photos and it carries an incalculable amount of e-mail. It enables me to browse the internet, to connect to friends, family and facebook and it also provides access to twitter by which much of my contemporary professional learning occurs. If I lost it and it were to be found it would be an electronic artefact containing, some might say, a digital account of my life - an automated autobiography!

#### 4.1.4 Reflection on IM4

Re-reading the correspondence relating to the TTRB, as I yet again attempt to reduce the size of my ongoing Canterbury account, I am reminded of the precociousness of that project. The need to do that ( $N_I$ ) arose from the technological reality that my now 13 year old account was about to exceed its limit. I wish there were time here to reflect on how ICT systems and those who manage them often, ironically, limit that which is potentially unlimited and boundless. That observation is itself a metaphor for IM4 which was in many ways an attempt to organise all the existing 'knowledge' for and about teacher education, to set limits and parameters. I know this was Leask's vision on commissioning the project (for a retrospective account of this see Leask, 2010 p.7). The point being that historically (from 2003) Leask had been trying to operationalise her vision of organising all the knowledge about teacher education using the power of technology (Leask, *ibid*).

With hindsight, one might contextualise the design, implementation and development of the TTRB to have been chronologically in that part of the history of technological evolution which may yet become known as the era of 'knowledge management'. Google was born in 1998 (see, <http://www.google.com/about/corporate/company/>). Zuckerberg was working on precursors to the Facebook in 2003, 'The Facemash' (Kirkpatrick, 2010 p. 21); Jimmy Wales launched Wikipedia in 2001, according to its own entry on its own website (<http://en.wikipedia.org/wiki/Wikipedia>)<sup>55</sup>; and Bill Gates at Microsoft had predicted all this according to Friedman,

"One of Bill Gate's early mottoes for Microsoft, which he cofounded [*sic*], was that the company's goal was to give every individual "IAYF" - information at your fingertips." (Friedman, 2006 p. 57)

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<sup>55</sup> There will be people who will opine that wikipedia is not a reliable resource since anyone can post to it, however the launch of a website is an historical event since there is a moment in time when the ftp activity ends and the site is live.

Wales' vision was to provide a locus for 'user-generated' content about anything. Leask's vision was to provide a platform for the teacher education community on which it could place its own user-generated content. The differences were that she wanted it all organised around an agreed schema so that it would be searchable by meta-data tagging but also that it would have been quality-assured and peer-reviewed before being released to the community (see Leask and White, 2004 p.1). I reflect on this as a kind of academic reaction to the explosion of Web 2.0 technologies.

## **Context**

The antecedents of this project are important to state at the outset of reflections on IM4. As can be seen in appendix 5, Mike Blamires was already connected into the Initial Teacher Education Professional Resource Networks or IPRNs as they were called. He worked on the behaviour4learning website alongside others. CCCU was also represented through the team of authors that contributed to Multiverse. It is a fact of history that Mike could not make the briefing at the TDA for the TTRB bidders and I was asked to go in his place. I can honestly and with some amusement recall the use he made of technology to join myself in with Paul Charman who was to become the project leader and for whom I now work occasionally as an independent. Tactically we needed to look like an existing partnership. Mike sent me a digital image of Paul he had taken on his reverse action webcam mounted into the lid of his *Sony Vaio* computer - this was state-of-the-art technology in 2004. He then sent Paul an image of me captured on the same device during one of our Faculty ICT Committee meetings.

I could reinforce my belief that I was there by going back through e-mail accounts, or trawling through the archived site

(<http://webarchive.nationalarchives.gov.uk/20101021152907/http://www.ttrb.ac.uk/>) to find



those articles that I reviewed, wrote or edited for the site, or simply rehearse from memory the meetings we had at the Institute of Education, at the Forvus<sup>56</sup> headquarters in Clapham or even the steering group meetings at the TDA's office in central London. There are also concrete artefacts that validate my claims to have been present, most notably the paper published in the proceedings of ICCE, 2005 in Singapore (Blamires and Hughes, 2005)<sup>57</sup>. What matters most, however, is not so much that I was there but what I took from this particular illustrative moment.

### **Readings/'Scriptures'**

As a reviewer for the TTRB, it was necessary to read a lot of material from across the whole domain of teacher education. Directly relevant to the my needs ( $N_1$ ) of the project, I found myself learning about meta-tagging (the skill of applying meta-data) and the advanced art of creating ontologies and taxonomies as if one were a librarian. I came to understand through reading and discussion with Phil Sheffield ( $N_3$ ) all about the 'Dublin Core' i.e. those bits of data that librarians use to sort information according to type, format and genre. To my shame, I came across, for the first time in my career (and that includes the successful completion of a Masters Degree related to education) the British Education Index of which Phil was, and remains, the manager.

There were times when I felt out of my depth - a derivation of  $N_1$  - , but always strove to get on top of my understanding so as to not let down the partnership. I forced myself to get on top of the templates that we were required to use on the system and this required me to think critically about each object. This was so that the meta-tags could be applied appropriately. Learning to

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<sup>56</sup> A subsidiary of RM Data Solutions Ltd.

<sup>57</sup> Here is the abstract to the paper which was itself peer-reviewed and remains in the public domain, "In this paper, we describe work in progress on the UK Teacher Training Resource Bank. This is an online database of articles, artefacts, materials and resources which have been compiled from the history of teacher education. The inclusion criteria for the site are being evolved in an organic and resourceful partnership between Canterbury Christ Church University, The Institute of Education's e-librarian, RM/3T and The British Education Index. Each object added to the site is assigned a unique identifier and carefully controlled meta data." (Blamires and Hughes, 2005)

use the BEI terms was a considerable effort which taught me how librarians construct meaning around the education discourse - a derivation of  $N_3$ . There were times when I thought this was often inaccurate or baffling - "why would you refer to  $x$  as this"?

At the same time I was having to read about SQL technology and the Microsoft asp.net solution since these were the technologies that were driving the TTRB. In learning this, I also came to appreciate the *MSN* search technology and how it made use of real word searching as opposed to the more traditional meta-data searches employed by the BEI. At the time, Microsoft were having to come to terms with the explosion onto the internet of Google with its much more powerful and yet apparently less complex search tool. *Windows Live Search* or *Bing* as it now is known was a very pale imitation of that which was 'Google's mission... to organize the world's information and make it universally accessible and useful.' (see <http://www.google.com/about/corporate/company/>).

## **Actions**

During this illustrative moment I spent a lot of time listening - actively. I also practised a lot in the quiet of my office or home office. Mike and I ended up sharing a room and we co-constructed knowledge and understanding by working on the system together and sharing bits of wisdom and intelligence that we were acquiring simultaneously. Mike was already into schemas and understood the 'semantic web' well enough to be able to draft a first pass of what the TTRB schema would be - a working example of  $N_3$ . This was useful peer-to-peer learning as I was able to replicate this in the context of building a meta-data schema for RE-Net (version 3) - a working example of  $N_4$ . That in turn led me into the more complex and business-oriented world of data analysis since, again, over the horizon, came the astonishing tool, '*Google Analytics*'.

As part of our initial contract with the TDA we had had to agree to report out monthly usage statistics: Numbers of log-ins; numbers of users; numbers of downloads; most visited pages and so on. Built into the TTRB infrastructure were SQL tools which allowed us to pull off the 'back end', what to me were, very sophisticated reports. And then came again Google. *Google Analytics* takes such activity to a whole new level and it was not long before I was producing very sophisticated data reports which certainly impressed colleagues on the RE-Net Steering Group. The like of this technology had not been seen before in the RE community; nor since. Whether the TDA were impressed remains an open question. They were however always polite and received the reports with good grace and a lot of questions.

### **Impact**

Again, what had started out as a simple response to the request for me to attend a meeting in my role as Faculty of Education, Director of Learning and Teaching with ICT, resulted in me in a different role and with a whole new range of technology-related skills. There is no doubt in my mind that had this sequence of events not occurred I would not now understand SQL technology, would be oblivious to the dark art of meta-data schemas and might never have heard of the British Education Index or its very useful sister technology, Educationline. The latter has been used for this study. Most significantly this IM plugged me into a series of networks from which I still benefit (N<sub>3</sub>). It has resulted in me securing self-employed work both as a direct contract worker for RM Data Solutions and also now as a piece-work interpreter of data reports arising from RAISEOnline and the Fischer Family Trust.

#### 4.1.5 Reflection on IM5

"As well as being the greatest invention since, oh, that round thing that cars tend to have four of, or those thin slivers of bread that come in packets, the *iPod* is also obviously a thing of beauty. And I think I am beginning to fall in love. Seriously..." (Jones, 2005 p. 4)

There would be no IM5 without the *iPod*. Reflections on IM3 set out in 4.1.3, show the beginnings of a series of thoughts that led to the dissemination of the concept of *i*"PD around 2006<sup>58</sup>. A benchmark for the start of these reflections is provided by the abstract of the paper published by ICCE (2006);

"This paper seeks to enunciate a theoretical framework for *i*-enabled Continuing Professional Development (CPD). It deliberately avoids the metaphorical application of the prefix 'e', to symbolise a more holistic approach to professional development than is currently afforded by assumptions in e-learning. Drawing on the Apple Macintosh<sup>TM</sup> metaphor of '*i*' approaches to life (*iTunes*, *iMovie*, *iPod* etc), it plays with the more personal contiguities of 'I'-ness. It extrapolates from the post-modern concept of the 'self', which can be seen to be central to all personal development activities and then explores what it might mean where some of the factors<sup>59</sup> identified here, interactive, intelligent, international and integrated are taken to be critical in effective professional development." (Hughes, 2006)

The citing of my own work could, on reflection, be regarded as a vanity. I think not. The inclusion of such material is in keeping with the auto/biographic method of the study. Here I have an authentic statement of the evolution of my thinking at the very moment which this illustration is trying to excavate for meaning. This is as close to being an artefact  $e@t_0$  as the hand written journal that is appendix 1. It comes direct from the professional context in which I was working and is, at worst,  $e@t_1$ . That is, it represents the output of structured thought processes as a genuine attempt to say something new.

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<sup>58</sup> It is again, a fact of history that I was not able to attend ICCE, 2006 which was in Beijing, China but a paper I submitted was peer-reviewed, accepted and was published in the proceedings and is still available online (see Hughes, 2006).

<sup>59</sup> The use of the word 'factors' explains my adoption of it as the term for defining the characteristics of learning in the zone of optimal auto/pedagogy

## Context

Alluded to in 4.1.3 were the emerging thoughts I had had in New Zealand about mobility, nodes, 'miniaturisation'<sup>60</sup> and digitisation. Whilst rehearsing them here so that this IM can be read as a stand-alone 'critical incident', I want to focus more on the PD in *i*"PD. By 2006, I was in dual roles. I was still a member of the Department of Professional Development at CCCU with a teaching load that included some middle level leadership and management work, day courses for serving teachers and an increasing amount of representative work for the University on national committees. I was also still directing the TTRB and RE-Net, as well as my seconded role as Faculty of Education, Director of Learning and Teaching. This entailed me in constantly working to professionally develop colleagues across the Faculty, especially in their uses of ICT in their everyday work.

It was in this context that I was continually spiralling in my thinking between epistemology and technology. How did teachers acquire the knowledge, skills and understanding that they require in the 21st Century, especially when budgets for training and development were very much under pressure<sup>61</sup>? It should be borne in mind also that, as the TTRB director responsible for networking and dissemination, there was still the significant influence on my thinking which was Leask's desire for reliable sources of information (see Leask, 2010). The mission of the TTRB was to ensure that teachers' and teacher educators' professional learning should be authentic, authoritative and accessible. I was into providing education and training for them in ways that were integrated into their daily work, made use of interactive technologies so that they could learn while busy and mobile, gathered insights from international settings - in recognition of all that I had learned from working in Jersey, learning in Malaysia and Singapore and travelling in

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<sup>60</sup> The act of compressing data and software so that more of it can be 'squashed', to use Jones' (2006) metaphor, onto miniature solid state 'flash' memory.

<sup>61</sup> At the time of writing (January 2012) there have been even more deep cuts to CPD budgets in schools and universities as politicians try to work their way out of the economic crisis.

New Zealand -. Above all, I wanted it to be grounded in research-based evidence. It was from this that I selected the word *intelligent* as one of the 'i's of the theoretical framework.

An important observation I would like to make now on reflection, is that I would love for this thesis to have been about *i*learning. That was the shorthand term I used in talks, presentations and development work from 2006 - 2008. Indeed, it found its way into the programme that I led from inception to implementation, *iteach*. I guess it would have been a huge leap for this study to align it with the iconic nature of the *i*Pod and its famous predecessors the *i*Mac and *i*Tunes.

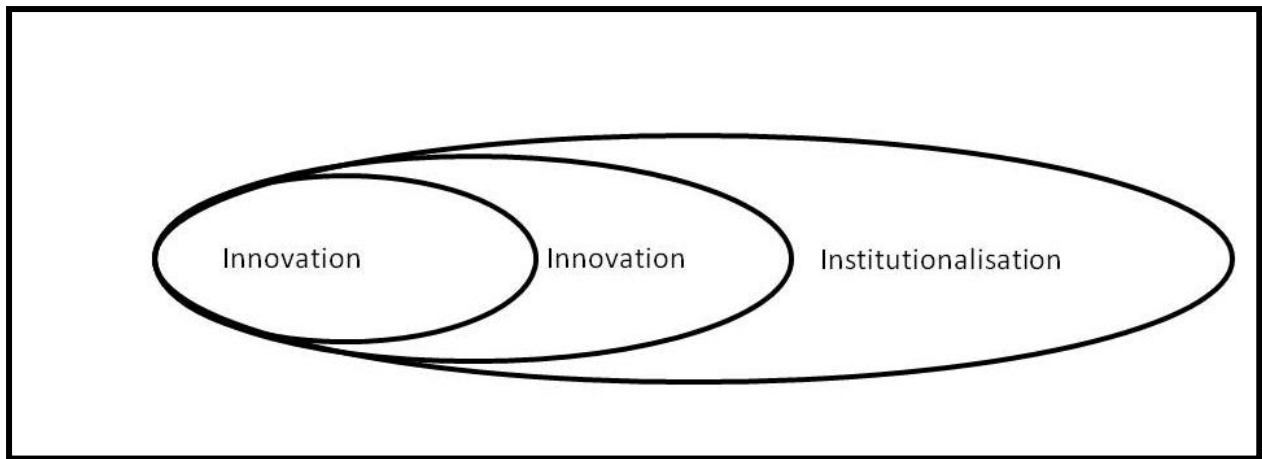
"One of the copywriters suggested they called it a "Pod". Jobs was the one who, borrowing from the *i*Mac and *i*Tunes names, modified that to *i*Pod." (Isaacson, 2011 p. 390)

### **Readings/'Scriptures'**

Even before Jobs had adopted the *i* as his metaphorical nod to the internet first - the *i*Mac was designed effectively as a thin client on the web - and then to personhood, in that a self arranged its music using the *i*Tunes software, Michael Fullan (e.g. 2005) had used three 'I's to model the critical factors in school improvement and change management: Innovation, Implementation, Institutionalisation<sup>62</sup>. Whilst working on a CPD project in Jersey around 2002, my co-trainer Tim Tatham used the following model to illustrate the process of educational change (see figure 25). I refer to this explicitly in the illustrative moment that is IM5 (appendix 6)

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<sup>62</sup> See e.g. Fullan 1999, Barber & Fullan (2005), Fullan et. al. (2012)



**Figure 23: Fullan's 3 I's of Educational Change**

The influence of this diagram on my thinking can be seen in figure 5: N<sup>4</sup>#2.

This is a good moment in the reflexive process to pause and note again, for the purpose of reinforcing the dialogic and spiralling nature of the learning in this project, that this diagram has been in the back of my mind since I saw Tim using it and it popped up as a way of attempting to draw out the relationship between the N's. It would be vain again to say that I believe there is a flaw in Fullan's hypothesis which may account for the failure of so many educational change programmes - perhaps especially those involving technological implementation. What appears missing to me is any notion of impact or influence. Fullan argues (1999) that failure is caused by the inability to institutionalise the change intended across an organisation. This relates back to the issue addressed in section 2.3, where the taxonomy of types of adopters was set out (see also Salmon, 2000 p. 71). I would argue that most resistant behaviour comes from the failure of change agents to either 'sell' the benefits of their innovation or for there to be a lack of need (N<sub>1</sub>) for change in the minds of members of the organisation. The impact on them is rarely addressed (e.g. savings on time, reduced effort or reduced cost thereby releasing funds for alternatives and so on) nor the influence such change can have on learners or learning. It needs to be noted that Fullan (1999) was working exclusively in educational contexts albeit mainly in Canada.

The relevance of this thinking to the overall project seems to be the need for the benefits of educational technological innovation to be tied to the needs of learners and learning facilitators. The relevance of the model to the study is the demonstrably cyclical and spiralling nature of the process whereby innovation, implementation and institutionalisation are constant and interdependent. Each new institutionalisation may well require a re-innovation for the new context. This will require new implementation and in the process the organisation may need to re-learn the attenuated model or method. Take, for example, a managed learning environment (MLE). Each iteration of the MLE (e.g. *Moodle*, *Fronter*, *SIMS Learning Gateway*, or *Blackboard*) for each new instance will need to be 'badged' to the institution. Each new release will need re-institutionalising for the revised context and change processes may need to be re-joined with members of the organisation. In technological terms, this is facilitated by formal and regular use of feedback loops.

Ignoring the criticality of feedback loops (see Waldrop, 1992 or Stacey, 1994) is perilous for organisations. Since change is incremental and evolutionary. It is the incremental or 'iterative' nature of software design, implementation and delivery that in some ways is the greatest gift of technology to the human project.

"That's why the old saw [*sic*] about computers only doing what their programmers tell them to do is both perfectly true and virtually irrelevant; any piece of code that's complex enough to be interesting will always surprise its programmers. That's why any decent software package has to be endlessly tested and debugged before it is released - and that's why the users always discover very quickly that the debugging was never quite perfect." (Waldrop, 1992 p. 282)

In my view, education technologies would be better if teachers were involved in all phases of their development from initial design through to debugging.



There are also 'bugs' in the domain of teachers' professional learning.

My point is a simple one. Continuing Professional Development programmes in the 21st Century must be tied to professional learner's needs. If you don't have an interactive whiteboard in your classroom, training for use in their functionality is pointless. If you have remote and dispersed learners without internet access on your programmes, there is no point training to use a MLE. If on the other hand - as is now the case with every teacher in a school in England and Wales - you have to be able to track and monitor the individual progress of your pupils from their 'attainment on entry', via their data-driven expected progress targets, through to their end of Key Stage outcomes, you need definitely to be trained in the use of online databases, CSV and SQL technology and the ability to manipulate data via spreadsheet technology.

CPD programmes that are not integrated into the working lives of teachers, nor based on their professional needs will not sell, however high-minded the aspirations of their designers and facilitators. It is in this context that, as I come to the end of the formal part of the study, I am currently working. Moreover the need for 'intelligent' programmes had never been more important than in 2006, though I would argue now that they are even more so. By intelligent I meant then ( $e@t_0$ ) and still mean now ( $e@t_1$ ) that computer technology (artificial intelligence being a relevant metaphor as well as the more traditional metaphors of intelligence-led policing or nursing), should be a central component of CPD programmes. As was seen in IM2 and IM4, such CPD programmes should also be interactive in my hypothesis and by this I meant - and still mean now - that teachers could and should learn by interactive methods. There are two aspects of this too. First there is the obvious human interactions that are axiomatic in knowledge co-construction post-Vygotsky (e.g. 1954); but also the interactivity that is perfectly enabled by

computer-mediated conferencing (see e.g Salmon, 2000, 2002, Kearsley, 2000, Lave and Wenger, 2008)

"Just as a natural habitat reflects the learning of the species, a digital habitat is not just a configuration of technologies, but a dynamic, mutually-defining relationship that depends on the learning of the community. It reflects the practices that members have developed to take advantage of the technology available and thus experience this technology as a "place" for a community." (Lave and Wenger, 2008 p.38)

## **Actions**

The most obvious output of this moment was the publication of the paper cited at the head of this reflection. I was challenged to write this into the strategy for professional learning across the Faculty in my embedded role as Director of Learning and Teaching with ICT and I was spurred on to provide needs-driven ICT training programmes. Arguably the most important outcome of this IM was the design, implementation and delivery of the *iteach* programme - significant because ultimately and ironically it brought about the end of my career as a practicing academic.

## **Impact**

Again, undocumented history might show that I first met Nick Breakwell in 2006. I have found an e-mail from 24th March in that year which discusses his intention to work with me on the development of a programme. This was all happening co-terminously with IM5. In my mind, therefore, must have been the theoretical framework for teachers' CPD which, in the case of *iteach*, was for pre-service training. The spiralling, dialogical and cyclical nature of my professional life meant inevitably that this framework was the foundation for the development of that programme.

In essence all the prior learning came into effect at this time ( $N_2$ ). The rationale for the programme, the modes of delivery and the assessment procedures were all in some way derived from the concept of *i*<sup>n</sup>PD. That was why we called it *iteach*. It was meant to be an

individualised programme of intelligent study that was integrated with the participant's life context and used internet-based, interactive technologies to overcome the obstacles to professional learning that had hitherto excluded some potentially great candidates from teaching. What had been learned over the previous seventeen or so years was now being applied in a new context ( $N_4$ ). At the heart of the *iteach* programme was a self wishing to become a teacher.

For me professional learning will never again be as it was when I started on my career in the middle eighties. Professional development will always now depend on auto/pedagogic processes. I will determine what I need to know. I will work out where I need to go to find solutions to professional problems and will probably join in, however peripherally, with networks that may assist this process. Learning derived from such a context will always be used in the next one that comes along.

The chronological context for IM5 at the outset was me as a member of the Department of Professional Development at CCCU. My professional concern was how to provide programmes of study that would be attractive investments for teachers wishing to improve their own practice. In serving that aim, I ended up out of that specific domain though the work continues in other contexts. Of real benefit is the thinking around this time which led to the following important insights:

- A teacher's professional learning is dependent causally on their needs.
- Once a teacher has defined a professional learning need they are already unconsciously adopting an auto/pedagogic approach.

## Summary

The case for the latter assertion is made on this basis. Reflecting on IMs 1-5 @ $t_I$ , suggests that need drives inquiry. The need arises from the self's interaction with the world in the context of its professional life. This may be because they know that there is something that they don't know. For example, trainees applying to the *iteach* programme, knew that they did not know how to teach - they just knew that they wanted to teach and how to do it well. I knew that I did not know how to use a MS-Dos based computer (IM1); or how to code in html (IM2); or run a teacher training programme in remote and dispersed settings (IM3); or how to define a schema of meta-tags (IM4); or make CPD programmes relevant to teachers in the 21st Century (IM5).

Both the *iteach* participants and I were motivated to turn our known unknowns into known knowns. To do this, it was necessary to embark on self-directed study so as to be able to apply lessons learned in the context of our careers. To do this, critical reflection on the exploration of the unknown was essential and each of us became our own pedagogues, learning on our own in remote, dispersed but networked contexts. It seems to fit therefore that learning driven by self, which causes reflection on a range of stimuli is in fact auto/pedagogy as defined in section 2.6.

I intend to explore this further in the next section.

## ***4.2: Stage 2: Analytical reviews of the five 'theoretically-imbued IMs (a@t<sub>2</sub>)***

In this second stage of the process, I intend to analyse the IMs reflexively using the questions that a journalist might ask: Who? What? When? Where? Why? To do this I have overlain on the raw text, highlighters in different colours so as to create a different look. This is in keeping with the phenomenological process described in 3.2 which requires analysis from different perspectives and views. The colour coding system is as follows:

Who?  
What?  
When?  
Where?  
Why?

This is a second level of reflection and is designed to look for patterns and trends in the IMs, thereby postulating potentially some 'case study logic' (after Yin, 1994).

It is a fact of history that I devised the journalistic approach to the IMs in a tutorial with Glynn Kirkham coincidentally at the BETT Show in 2008. It should be noted that the first IM, written around that time, is set out in that form making analysis more straight forward. The method was attenuated in a tutorial with Mark Hadfield in 2010, following a conversation with Neil Duncan who advocated the 'stream of consciousness' approach to the recording of the IMs - it should be noted that I have not adopted that mode fully given the consideration made in section 2.2.7 about memory. Accordingly the remaining narratives are written without form or logic which made the super-imposition of the highlighting a more interesting and potentially more useful exercise. I have applied it in the latter stages of the research process in late 2011. It was only in the first 'pass' of the exercise that I was able to define fully what I meant by each category. Before doing a second and more thorough 'pass' through the IMs, I wrote these definitions:

- Who - I have highlighted in green individuals, groups or organisations who were instrumental in the learning process - arguably pedagogical agents. I have not highlighted the names of authors whose work is cited dialogically inline in these narratives.
- What - I have highlighted in red words or phrases that signify learning or development of knowledge, skills or understanding. It surprised me on conducting this exercise the extent of the richness and diversity of such words and phrases that were returned in the analysis. Many of these were formal; others colloquial 'turns of phrase'. Here is what I found: 'pause for thought'; 'get my head round'; 'sustained analysis'; 'dawned on me'; 'inspired'; 'gave me an insight'; 'played with'; 'get up to speed'; 'realised'; 'moment of enlightenment' and 'wondered'. The words 'learn', 'learning' and 'learned' pepper the five narratives.
- When - I have highlighted in blue anything which has a chronological overtone like a date, a period of time, an era or moment in history
- Where - I have highlighted in olive words that signify a location, context or place. Some of these are physical spaces, others virtual contexts and some are geographical references.
- Why - I have highlighted in violet, the reasons why I did something or something occurred.

## Analysis

On completing the re-reading of the IMs (appendices 2-6; appendix 1 is left as a raw artefact) and counting up the instances of each highlight occurring, it is interesting that the following data are returned:

Highlight	Instances
	83
	66
	24
	18
	0

I was surprised when I completed this exercise that the rank order that was produced followed exactly the order in which I wrote down the questions in the tutorial with Glynn. It suggests that people had a significant impact on my professional learning - in educational technology terms, they were pedagogical agents. Learning appears to be nearly three times more frequent a thought than the times or places about which I wrote.

This also suggests that I was not at all thinking of the reasons why I did something or conscious of why it occurred. I do not appear to attribute any causality in the IMs, other than need. Given that I had already decided to explore the IMs by the themes of the emerging framework, it is convenient that the next section begins with an analysis of what each IM evinced about 'need'. Most striking is that the reflections in section 4.1 (a-e@ $t_1$ ) are much more conscious of the impact of N-ness, which may be precisely because they are written at more like  $t_{1.5}$  when the framework was embedding in my mind. This analysis, which I hitherto alluded to as a-e@ $t_2$ , might be more reasonably described as a-e@ $t_3$ . In other words a third stage removed from the incidents themselves with the reflections at 4.1 much more theoretically-imbued than I wanted to believe.

### ***4.3 Stage 3 Analysis using the four stage theoretical schema of auto/pedagogy (a-e@t<sub>3</sub>)***

In this section, it is my intention to explore the IMs thematically against the framework that has become the object of the research as well as one of its tools. Each 'N' is treated as a concept and illustrations from each are used to exemplify how the framework ties together horizontally as well as vertically.

On reviewing these reflections, in the latter stages of the project, I can see how they have been formed differently over time. Most notably the latter ones, from IM3, are more sophisticated. Self-critically, I can see they are better written, more analytical and make better use of the literature consulted. I infer that this is because my self-conscious learning has improved over the duration of this study. That in itself is perhaps an important finding of the study. If a self spends time in auto/pedagogic enterprises, the quality of their learning improves - this seems to be so in my case. I wonder if this is the same as the old adage about cynical and resistant teachers: "25 years of experience, or one year of experienced recycled 25 times." It is for the simple reason of showing development over time that I have left IM1 and IM2 in their more 'raw' forms.

Others will judge if this ipsative assessment of my own learning is accurate.

The reason why these writings are described as a-e@t<sub>3</sub> is because the reflexive process is now two stages removed from the original incidents. The work from here on represents a meta-level of analysis insofar as it was conducted outside the original research objects, just as suggested in the discussion of phenomenological approaches to a cube (see chapter 3).



#### **4.3.1: Analytical Reflection on IMs Against the Concept ‘Need’**

The first ‘N’ in the emerging framework stands for ‘need’. In this piece of writing, I intend to meta-reflect on my ‘needs’ in each of the five illustrative moments. In IM1, there was the very immediate ‘need’ I had created for myself by answering “yes” to the Headmaster’s question and that was to learn to use a computer. There is an impelling logic behind the presence of ‘need’ in the framework which connects back to anthropological, psychological or emotional needs. This is different, in the context of technology, where the ‘need’ to improve soft or hardware and processes has led to the frequent use of the word ‘iteration’. New iterations always derive from the need to fix things that are wrong with the previous instance - I saw this frequently while the TTRB was being built.

In the domain of professional learning, it could be argued that each new role that a teacher takes on in their career is a new iteration of their existing skill set. For example, although I no longer teach children directly, many of the skills I acquired in those settings, at earlier stages in my career, prove invaluable now when working with teachers in training or in-service and also when working with LA officers or members.

A teacher's need to learn something is, I would suggest, dependent on their motivations as a professional but also on more human, may be material or even spiritual considerations. It may spring from their values or a vision they have for themselves or the children they have in their care. Dadds and Hart (2001) report a whole variety of such reasons. In the context of this study what began with a response to a need to learn to use a computer properly - as a result of a critical incident now recorded as an IM - could be said to have led to an ongoing professional learning *modus operandi*.

Reflecting on my reasons for wanting to move schools in 1989, inclines me to suggest that there was a personal need to prove myself as a professional. Reflecting on this in the light of Maslow's hierarchy of needs would suggest that my motivation had something to do with 'esteem needs' (see. e.g. Maslow, 1943). Whilst I believe I needed more money and a hike in career, that is probably not true – the family was surviving where we were (in accordance with Maslow's 'physiological' and 'social' needs see e.g. Maslow *ibid*). 'Achievement motivation' and 'ambition' had been driving forces in my decision to apply in the first place.

Reflections on the 'Can You Use a Computer?' incident, written up as IM1, indicate that I was aware of the challenge I had set myself inadvertently by making what appears now to be, at the very least, an impetuous claim to computer proficiency. Viewed deontologically this claim could be seen as mendacious. Viewing it ethically '*a posteriori*', in keeping with the epistemological method of the study, it can be evaluated as an act from which great happiness was subsequently derived<sup>63</sup>. It certainly triggered a number of events, themselves based around needs and motivations.

Above all I needed access to a computer, in order to make any progress with my self-paced learning. I had seen the potential of word-processing and was aware of the growing uptake in schools. Technology was becoming ubiquitous across society and some schools had embraced it as both an administrative and learning tool. I was pretty sure that I would be unlikely to get funding for out of school learning. I was also clear, in any case, that beginning a new role, would require me to focus on the day job in order to be seen to be making a difference. Thus I needed personal access to a computer on which I could practice at home and deliver outputs and outcomes in the context of my role.

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<sup>63</sup> It could be evaluated as an act of moral rectitude when measured against John Stuart Mill's utilitarian 'hedonic calculus' (see. Mill, 1996)

I also recognised the need to have a task that would galvanise my learning – I suppose I knew this of myself already as a professional learner. For example, in my first post I had produced and directed three school productions and had learned how to operate a 'high tech' sound system which was loaned to that school by *Samuelson Communications* – a major film production and events company. They agreed to leave the equipment in school if only myself and Charlie Beddow<sup>64</sup>, a year 10 pupil, had exclusive access to the sound desk. I figured that if I could get my head round that level of technology with all its radio microphone and digital sampler capacity, I could learn how to use a PC.

"While we may each perceive information through different senses, we ultimately learn by doing. First we watch and listen to others, then we try doing things on our own. This sparks interest and motivation and generates the motivation for self-discovery." (Conner et. al., 1996 p. 14)

Access to the PC was achieved by persuading the head that I needed to re-do the schemes of work. In order to re-work the schemes of work I needed a PC so that I could write, edit and amend the documents efficiently. The first PC I had was a double disk drive IBM PS2 compatible machine supplied by Nimbus. On one floppy disk (3½" Double Density) were the operating system and programs. The other disk was where files were saved that had been created from the programs on the first disk. I learned quickly, that there was a necessary sequence through which one had to pass to ensure that time was not lost recovering previous work. I also learned quickly the need to create filename conventions as the number of files that I created grew rapidly and would have become uncontrollable. Furthermore I had to learn to create conventions that rendered unique filenames with just eight characters, a dot and three letter file type. Reflecting on this now, it is clear that I was, perhaps even before Lave and Wenger (2008) or Wenger et. al. (2010) had defined the phenomenon, participating legitimately

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<sup>64</sup> Charlie was the son of Charles Beddow, one of Samuelson's UK directors and – happily – a pupil at the school.

at the periphery of the global technology community. It would be inappropriate to ascribe the notion of a community of practice to the loose collection of professionals 'struggling' with learning a new syntax, ways of working, routines and practices and so on, but I was learning around the edges of such a cadre. Reflecting back I recognise now the essential skills and, knowledge I was acquiring even if at the time it was going on outside my consciousness.

At that time professional and practical needs drove the learning. If I didn't save work carefully under my own conventions, I would lose it or waste time searching through files to 'see if I had the right one'. As the number, type and range of my files increased, I learned about storage capacity and recognised the need to keep separate disks for separate bits of work. It was as though I was my own pedagogical agent enabling me to cross my own 'zone of proximal development' (see Vygotsky, 1954). Occasionally, as can be seen in appendix 2, some pedagogical agents like Simon Stanford would help with this process. These reflections are interesting in the light of the quotation from Glaser:

“Effective learners are sensitive to their own learning styles. They capitalize on their strengths and compensate for their weaknesses. They are able to use all styles appropriately. Program designers and facilitators can also help their participants by recognizing learning styles in the preparation and delivery of the learning process.”  
(Glaser, 2002 p. 13)

With the benefit of hindsight, and a more self-conscious approach to professional learning at the time, I suspect I might have been more meticulous in keeping records of things like my departmental requisitions which shifted in about 1991 from a formulaic maintenance and development approach to budgeting to a much more strategic approach to resource management, where I recognised that cost-effectiveness could be achieved by buying disks and paper over and above text books and sugar paper. In keeping with the epistemological method of this study, there was a clear dialogic going on at this time between me as the novice and people like Simon Stanford - even the head teacher himself who volunteered some aspects of his expertise and

experience - , my sister-in-law, herself an IT trainer, and her husband both of whom were more expert than me.

The second illustrative moment also points to an important need at the interlocution of my learning and technology. I needed to learn and understand how to program in html in order to keep pace with the expansion of RE-Net. Honesty dictates that I admit to wanting to keep up with, if not ahead of, Bob. I was quite into hierarchy then. It became necessary also to learn to be able to manipulate images so that pages could be decorated with graphics which reinforced the messages we wished to communicate textually. Early desktop publishing had allowed me to resize graphics using built-in crop tools. Working in html made it necessary to set file and placeholder sizes in pixel widths or page-width percentages. Skills that had been developed around data and file management were also honed in this context as the specificity of programming conventions meant that a missing 'dot' could cause a whole page to crash. Some of this was learned by trial and error. Some, by the experts I consulted and, some, from the manual I bought for Bob to use. In noting this, I am indicating the different learning strategies adopted and in so-doing acknowledge that the critical factor in the selection of the most appropriate was me.

Mapping the previous paragraph onto the framework set out in Conner et.al. (1996), I can see that I was mixing the method between active learning (Conner et. al., 1996 pp. 16-17) and a more interactive mode - and by this they mean, with a human as the agent of learning (Conner et.al. p. 17). They write,

"Learning requires us to move beyond where we are now. We must move into unfamiliar, often uncomfortable domains. While we're learning we may even feel uneasy. In hindsight we may see the experience as productive." (Conner et. al. *ibid*)

Once I moved to Canterbury, and it was clear that RE-Net could make an ongoing contribution to the professional learning of teachers in training, I was able to access further support and guidance in this new field of activity. The TiTle Unit at CCCU – Technology in Teaching and Learning – had been established under the direction of Phil Poole, to provide technology support for those who wanted to develop work in online settings. My need to create materials quickly was met by the tools that the TiTle team were able to provide; tools like *Html Assistant* and *Paint Shop Pro*. A point of noteworthy reflection is pertinent here. At no stage did I avail myself of the many training courses that were available for these software packages. Rather, I continued to use an exploratory and heuristic approach to learn how to use these applications as I found that my learning ‘stuck’ more when I had practised ‘active experimentation’ (Kolb, 2005) rather than ‘reflective observation’ (Kolb, *ibid*). As Conner et. al. note,

"Self-directed and risk-taking learners may forgo this step [learning in classroom contexts] and jump in without even knowing why." (Conner et. al., 1996 p. 17)

All the while, I was applying strategies and techniques developed in the early days of my computing experience as shown in IM1. This I later called *i*learning (see IM5) and for the purposes of this study have identified the phenomenon as auto/pedagogy. Support for the notion can be found in the words of Wenger et. al. (2010):

"We see learning as an integral part of life. Sometimes it demands an effort; sometimes it is not even our goal. But it always involves who we are, what we do, who we seek to connect with, and what we aspire to become." (Wenger et. al., 2010 p.4)

This is further supported by Glaser’s take on experiential learning, when he says, “... all learning has an experiential base.” (Glaser, 2002 p.14)

Looking back this was never more true in my autobiography than in the trip I made to New Zealand which is recorded in IM3 (see also appendix1):

I have reflected on the comment made by Kit Field (cited in section 4.1.3) frequently and would now say that at that time, travel to ICCE 2002 was entirely justified. Indeed, it would probably have always been necessary since the face to face encounters I had on that trip were crucial to the development of the underlying hypothesis of this study. It was the blend of online and face to face encounters that were so professionally enriching as well as the formal immersion in the discourse of 21<sup>st</sup> Century learning. As can be seen in reflections on the concept of 'network' later in this chapter, this was not about 'legitimate peripheral participation' (Lave and Wenger, 2008), it was full self-conscious active and experiential learning (see Conner et. al's (1996) treatment of Kolb's theory in the context of technologised learning or Glaser's (2002) treatment of adult learning).

A further important point of reflection seems relevant: It is perhaps technology that has driven the need for professional learning on my part but the resultant gains in knowledge, skills and understanding have been achieved through the pedagogic agency of fellow human beings. I needed to find out more about education in China in order to prepare the so-called the 'E-China' bid (see IM3). This led me into a range of inquiry strategies. From these emerged the opportunity to go to New Zealand and then my need to find my way round the country prompted my need to get in touch with other academics – this, in turn, put me in contact with Bill Anderson and Mary Smith whose expertise I learnt from (see e.g. Moore and Anderson, 2003) as they were, and remain, leading experts in distance education<sup>65</sup>.

When I reflect on illustrative moment 4 - the building of the TTRB - and consider what my needs were at that time, the stand out thought was that I needed to know and understand more about the process of knowledge and content management. Glaser notes,

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<sup>65</sup> Bill and Mary still act as executives of DEANZ, the Distance Education Association of New Zealand (see, [www.deanz.org.nz](http://www.deanz.org.nz))

“It is helpful to think of a need as a gap between someone’s (or group’s) current performance and what someone else (or others think that performance should be).”  
(Glaser, 200 p. 2)

Concepts like ‘the semantic web’, ‘meta-tagging’ ‘information ontologies’ and ‘meta-data schemata’ were all new to me. In order to operate as a professional, it seemed necessary for me to get on top of such terminology and understand more about what this meant in practice for the TTRB. This meant working with other human beings for whom such matters were part of their everyday professional discourse. Happily, the three professionals with whom we partnered – Stephen Pickles, Head of Library Services at the Institute of Education, Phil Sheffield, Project Director for the British Education Index and Barbara Sakarya, the TDA-funded ‘E-Librarian’ – were all very willing to induct me into this new world of discovery and opportunity. Never before had I been so acutely aware that the more I began to know, the more I realized I didn’t know.

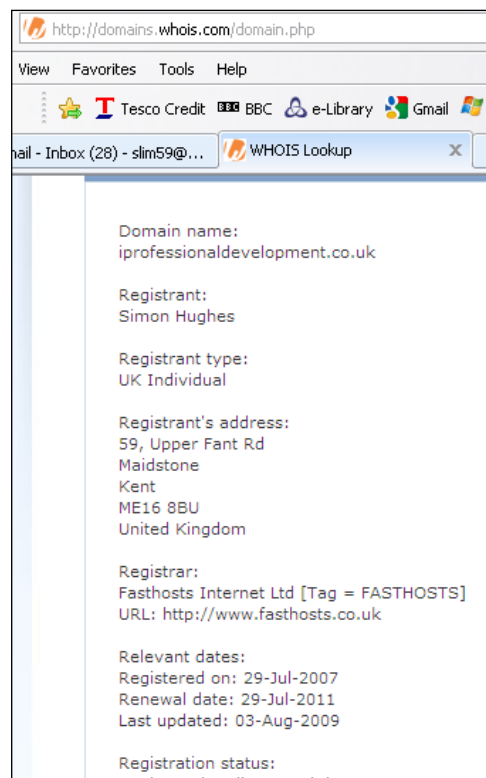
The last illustrative moment is a little different from the others with reference to ‘need’. In some ways, I had proved to myself all that I needed to personally by the time I began to cast about for a framework for the ideas that were beginning to bubble to the surface. In some ways, the need to be seen to be fulfilling my professional contract i.e. by producing research-based outputs was the principal driver. In one sense I knew I needed to be task-focused sufficient to produce some written outcomes from all the work I was involved in, for the simple reason of being included in the RAE! I was also driven by the need to not lose my intellectual property and wanted to record some of the thinking in a publicly acknowledged format. Practically, I am very glad that I did because my present employers<sup>66</sup> have adopted the notion *iPD* as a way of re-branding many of their existing resources so that they might become a more attractive purchase possibility for

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<sup>66</sup> This must have been written originally between September 2008 and August 2010, as I moved on from the Pearson Publishing Group at the end of that month.



schools and colleges. It was very useful in one professional encounter to be able to refer to the citations of my work on the APSCE network as evidence of the ownership of the original idea. Recognising that I might have hit upon a good idea, I registered the following domain names as evidence of how long ago I was working in this arena, *iprofessionaldevelopment.co.uk*, *iprofessionaldevelopment.org.uk*. As can be seen in figure 24, formal dating of my registration was 29<sup>th</sup> July 2007. I record this as further evidence of the 'esteem needs', identified by Maslow (1943). As such these are quite different from the specific needs spawned by professional challenges described elsewhere in this section. These were much more ego-driven, on reflection.



**Figure 24: Registration of iPD**

This short analysis of the concept of 'need', as it relates to each of the illustrative moments, has been very useful for extracting the points of professional learning - though there is a sense in which it is my person that learns first and only then translates the learning on into the professional domains. In most cases the needs have been positive ones, though there are times

when a more cynical, selfish or egotistical reason is the motivating factor. In every case, however, there does appear to an element of Maslowian self-actualisation at the heart, though self-awareness dictates that I should acknowledge the critical impetus of the lower order need, 'esteem'.

#### **4.3.2: Analytical Reflection on IMs Against the Concept ‘kNowledge’**

The purpose of this piece of work is to reflect on the kNowledge aspects of the illustrative moments that comprise the core objects of the study.

In the first illustrative moment, I have recorded the reality that I had little prior knowledge of computers. I had played with computer games as a student and had been trained on very basic word-processing by a colleague at my first school in Luton. I was also aware of the growing tendency to provide learning opportunities for children through computers but I had no real practical knowledge of how they worked or how they could be used. It was obvious, though, that St. Simon Stock was considerably further advanced in its adoption of technology right across the school and I knew instinctively that I would need to get on the band wagon that was gathering pace. A dialogical reflection on that last observation is relevant. I needed to move from unconscious legitimate peripheral participation (Lave and Wenger, 2008) to formal, structured active experimentation (Kolb, 2005, Conner et. al. 1996).

Further analysis of my use of the term knowledge as one of the components of the framework for this study reveals the insertion of the adverb ‘prior’ ahead of the term itself. So it is reasonable to assert that I brought forward into this moment a piece of tangential and transferable knowledge and that was the ability to type. Familiarisation with a ‘qwerty’ keyboard, albeit operated only by the two-finger method, was a good starting point. I also knew that a computer was operated by a series of programs and that data was created, stored and retrieved for editing by the creation of files. I am not able to recall when I learned the difference between a binary operating system and DOS (data operated system), but my memory suggests that it was not long after I started at the school.

I can only have learnt this from Simon Stanford who I acknowledge in the narrative accounts of that period of time. In addition to this, and other, fundamental bits of information, I gathered from him some important building blocks of knowledge which have stayed with me and which have evolved and been enriched over time. Among these are the differences between Read Only Memory (ROM) and Random Access Memory (RAM). Reflecting now on IM1, these terms seem almost archaic and irrelevant, as if they were the property of another epoch. The only people who care about such nuanced differences are those who wish to ensure that their machine has sufficient capability to deliver the core computing functions they need in the execution of their work or other applications.

A further piece of prior knowledge on which I drew regularly at the time is harder to describe. I believe that the discipline of logical argument associated with the study of philosophy was convenient to the new learning context. Frequently I would apply problem-solving logic to the learning of new technologies. For example, I had found the mental arithmetic approaches to the creation of percentages challenging as a child and on into 'O' Level study at school (That which Papert describes as 'Mathophobia' (1993) and about which I wrote in IM1), but I understood the steps through which it was necessary to take a set of numbers and operate them to produce results. Such logic I applied to the acquisition of skills and learned to solve my own problems by thinking through the steps that seemed to be necessary to execute a function. Once I knew some basic commands like <file>, <save>, <print>, etc., in one program, I was able to apply that new knowledge in other contexts. My knowledge base increased daily.

By the time I was setting up and developing RE-Net, I had accumulated considerable technical knowledge pertinent to the domain of computer usage. I was adept at setting up computers, installing software, connecting peripheral devices like printers and headsets and was able to

solve a lot of problems without recourse to technical support. I had learned also to touch type with two fingers on each hand, thereby doubling the speed at which I could enter data – especially useful for creating resources. I knew how to insert images and sound files into presentations or documents, how to search the internet, how to access e-mail and so on. I also knew by this stage that programming was not a mystical science confined to the geniuses of NASA or the Massachusetts Institute of Technology (MIT); it was a relatively straightforward 20<sup>th</sup> Century skill that could be acquired like riding a bike, operating a VHS machine or operating hi-fi. Above all, I had lost my fear of computers. I knew that I could control them not *vice versa* and that they could be made to make my life easier.

To the building of RE-Net version 1.0, therefore, I brought prior knowledge of the subject, basic keyboard and programming skills and the knowledge of where to get help. Reflecting on this, it seems as though my tendency to learn by active experimentation was enabling me to acquire knowledge and skills very fast. I can recall my excitement when writing a piece of html, saving the file, opening the browser, clicking refresh and seeing the results of my programming displayed online. The feat of accurately typing the full url for an image, in order that it displayed correctly was sometimes such a challenge that I forced myself to be very organised about file naming conventions and data storage. Such is the prior knowledge I carry forward now into the maintenance of a range of websites which I maintain professionally, commercially or voluntarily.

#### 4.3.3: Analytical Reflection on IMs Against the Concept ‘Network’

“As I noted earlier, many of the new middle jobs will go to people who are great synthesizers – because the more the flattening of the world connects all the knowledge pools together, the more new specialties will be spawned and the more innovation will come from putting these specialties together in new and different combinations.” (Friedman, 2006 p. 458)

The purpose of this piece of writing is to explore the concept ‘network’, one of the four factors of the framework. In so doing it is intended to show that aspects of it, however, sub-consciously, had impacts on my auto/biography and were catalytic in the effect they had on the emergence of my knowledge, skills and understanding. Central to this part of the hypothesis is the contribution, arising from my own participatory behaviours, I made to knowledge generation – I was present in all these events. Heron and Reason (1997) refer to self-consciousness of this phenomenon as the ‘participatory worldview’:

“The participatory worldview allows us as human persons to know that we are part of the whole, rather than separated as mind over and against matter, or placed here in the relatively separate creation of a transcendent god. It allows us to join with fellow humans in collaborative forms of inquiry. It places us back in relation with the living world.” (Heron and Reason, 1997 p. 3)

As the intention is to show the presence and significance of ‘network’ activity as a sub-text that links the theoretically-imbued moments from my autobiography, it seems logical to present this analysis in chronological order. A full explanation of what the term ‘network’ signifies in the context of this study is offered in chapter 2.3.2 and explored below. As an *aide-memoire*, it seems appropriate to summarise it as follows.

A network is a dynamic matrix of inter-connected phenomena linked together in mutually sustaining relationships. Neuro-biologically, the brain is a model for ‘network’.

Technologically the internet is a doubly significant metaphor in this context for ‘network’.

Anthropologically, the phenomenon of ‘social world’ is a metaphor in this context for ‘network’.

Theoretically, the most helpful metaphor discovered in the context of this study is that of ‘rhizome’, discovered in the work of Polsani (2002).

In 1989, I was not at all self-conscious of networks and I was a long way off my meeting with Pithamber Polsani and reading his work. However, I recognised the need to draw down wisdom from those networks that I identified as potentially helpful. In IM1, I allude to the relationship I developed with the head of IT at St. Simon Stock School who was endlessly helpful in training me in skills that I still fall back on from time to time. I attribute to him my knowledge of spreadsheets, databases, anti-virus software, silver bulleting software and the use of simple programs in learning and teaching. It was in his room, that I first began to witness two important phenomena. First, I noticed that it was possible to learn a lot about technology by observing the computing behaviours of the pupils. Indeed, I frequently ‘networked’ with young people and then tried out what I had observed in the relative security of my office - Further evidence of the sequence from personal learning to professional learning. Second, when asked to cover for absent members of his department, I became aware that for the first time in my classroom, there was an object that was much more interesting than me – the monitor. It dawned on me in those networking moments, that there was a potential future for schooling without traditional conceptualisations of the teacher-pupil relationship. Indeed, I had benefited from the inversion of that model in more ways than one. Lave and Wenger (2008) might evaluate this illustrative moment as an example of ‘Legitimate Peripheral Participation’:

“As an aspect of social practice, learning involves the whole person; it implies not only a relation to specific activities, but in relation to social communities – it implies becoming a full participant, a member, a kind of person.” (Lave and Wenger, 2008 p. 53)

Of course, what I was experiencing was a precursor of the internet. Playing with the concept of a rhizomic network, it is possible to argue that the IT Department of St. Simon Stock School was

an exemplar of such a phenomenon. Simon Stanford, the head of department brought to it, knowledge, skills and understanding that he had acquired through his own research and by attendance on a proliferation of training courses in Computing Science and ICT that were around in the middle to late 1980s. His pupils also contributed, from their own, largely games-oriented computing experiences, their own knowledge, skills and understanding. Such knowledge was transferred to anyone interested enough to participate in this knowledge building community. I was such a person. Importantly however, this metaphorical DNA for that network was being replicated in other schools across the globe. From time to time representatives from each local network would meet, interact and add value to each other's network by the free sharing of knowledge, skills, understanding and increasingly information and software. The history of computing shows that this was how the exponential growth in computing science occurred and continues to do so (Standage, 2003, Hodges, 1992, Naughton, 2000). It is how the Open Source (community-developed software) movement continues to flourish today (Friedman 2006).

“... the reason I think community-developed software is also here to stay is that while it may not be sustainable without an economic incentive at some point, as a sheer tool for making breakthroughs and spreading those breakthroughs virally, it has proved to be very powerful. (Friedman, 2006 pp 110- 111)

"Open-source software development is a good example of how communities can use technology to collaborate as well as invent and transform the tools that are available to meet their needs." (Wenger et.al. 2010 p. 19)

There is no evidence to draw on that indicates the phenomenon of young people who had participated in the St. Simon Stock metaphorical human and technological rhizome, going out and participating in other networks, or indeed creating them. With the advent of [www.friendsreunited.co.uk](http://www.friendsreunited.co.uk) or [www.facebook.com](http://www.facebook.com), however, it is possible to find young people from that time who are now participating in contemporary technological social networking. In other words, the DNA of that original rhizome survives in albeit attenuated networking forms. Even if St. Simon Stock were to close down and the whole teaching force re-distribute to other



locations and the pupil community be distributed to other formal learning settings, the DNA would travel with them – Just as when the rhizomes of an iris are dug up and destroyed in one location, its DNA lives on in newly formed rhizomes elsewhere.

"Delueze and Guattari use rhizome, a biological term that refers to a root-like stem emitting roots and usually producing leaves at its apex, as a metaphor for describing social formation in advanced capitalist societies. The internet, with its rapid growth and acceptance worldwide, is emerging as the form of sociality connecting institutions, governments, business, social groups and individuals in an irrevocable bond of interdependency. " (Polsani, 2002, 2 p. 2)

As indicated elsewhere in this thesis, the DNA of the modern internet is network adapters, Cat 6 cabling, rj45 plugs, Ethernet switches, optic fibre cabling and so on. In IM2, I recorded the contribution of Bob Bowie to the development of RE-Net. He participated (and continues to do so) in a range of ‘social worlds’, one of which is his family from whom he derived the pivotal bit of information we required to make it all work i.e. html. As part of that learning process we both accessed the many online fora, helpsites and emerging ‘internetworks’, which exploded once ‘geeks’ had seized control of the contemporary weapons of mass communication. It was his brother, through participation in his own professional networks, who had come across this critical piece of data. Polsani’s hypothesis is that ‘flow’ occurs at the point at which information is both the subject and object of a knowledge generation event.

“The lifeblood of rhizomic network is the information. As the information space is a temporalized space whose basic state is motion, the information is in constant flow. Continuously added, enhanced, transformed, exchanged and altered, the information ceases to be a product to be consumed, instead it is characterized by the fluidity of Flows that are constantly circulated. The nodes of the network are the access points for information flows, and the access point is where information space is revealed in the interface. The Interface Space is the arena of performative actions of individuals and information alike. This Interspace comes into existence only for the duration the node is activated.” (Polsani, 2002, 1 p. 2)

It was our participation in and contribution to knowledge creation networks that enabled RE-Net to be born and thus provide unrivalled access to subject teachers of RE in their social world.

Chronologically and epistemologically, IM3 has become the fulcrum for this study. The Asia-Pacific Society for Computers in Education (APSCE) conforms well to the metaphor of a rhizomic network. In many ways it replicates the traditional construct of an academic network. It contains random academics who share ‘research interests’. They come from a wide geographic region and are at different stages in their careers. It meets annually, has a peer-reviewed journal as its main vehicle for dissemination and knowledge transfer (*Research and Practice in Technology Enhanced Learning*) and it sponsors research studentships and doctoral symposia. Such things are the replicable DNA of other academic communities and networks – like, for example the British Education Research Association (BERA) or The British Medical Association (BMA).

In 2002, peripheral members of BERA were present at the International Conference on Computers in Education (ICCE2002) (e.g. Gráinne Conole and myself), bringing to this network UK perspectives on e-learning. Similarly, researchers and teachers from the US, China, Japan, Australasia and so on also contributed from their social worlds, networks and professional communities a diverse range of perspectives and insights. Symbolically, the e-mail distribution list for APSCE signifies the reality of the formal network that continues to be born as a result of that coming together in New Zealand. Whilst it would be inappropriate to have a British, or even European ‘chapter’ of APSCE, it is not surprising that ‘off shoots’ of APSCE have emerged in countries like Taiwan, China, Malaysia and Japan. The rhizomic nature of these networks means that even if the original ‘plant’ – APSCE – were to wither and atrophy, there would be a perpetuation of its original purposes and content. Naturally, the ‘seeding’ of the intellectual capital generated through APSCE and its activities will have distributed knowledge, skills and understanding to pre-existing or newly emerging networks in those places, helping to build the global knowledge base for 21<sup>st</sup> Century learning.

In 2005, I contributed a paper to the International Conference on Computers in Education which took place in Singapore (Blamires and Hughes, 2005). In that paper, I reported on the joining up of four very different components of a new network, formed from representatives of pre-existing and otherwise independent networks. The academic community was represented by myself and Mike Blamires; Phil Sheffield (British Education Index) and Stephen Pickles (London Institute of Education) represented a community of librarians; Paul Charman and Matt Smith represented the commercial sector in educational technology and Marilyn Leask, Matt Foulds and Paul Jenkins represented the civil/public service educational technology policy community. Although what joined us together was the challenge of building an online community of initial teacher educationists, supported by peer-reviewed resources and materials, each group represented very different networks with varying organisational ‘cultures and climates’ (e.g. Adair, 2009)<sup>67</sup>. Reflecting on this experience, it can be seen that we exploited the strengths of each of these inter-connecting networks. It was in the combination of the respective DNA of each pre-existing ‘rhizome’ that the efficacy of the TTRB was forged. Phil’s contribution of semantic ontology complemented Paul’s contribution of assured commercial behaviour, which was embraced by colleagues in the TDA, who drew from Mike and I intelligence about the academic community and those most likely to contribute to this emerging way of generating knowledge for the sector.

It is a fact of history that the third iteration of RE-Net was a direct consequence of my participation in this network. In order to model how other SRNs could benefit from participation in the TTRB, we created a sub-portal for RE-Net and then uploaded all the existing content and materials into the new platform. RE-Net was thus effectively a new rhizome within the over-

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<sup>67</sup> There are a number of sources for Adair's work, the most recent being a revised version of *Effective Leadership* published by Pan in 2009

arching parent ‘plant’. Contractually, I established RE-Net as a separate presence which means that, even if the TTRB were to be killed off or die, RE-Net could continue independently but using all the same DNA as the original resource network. Leask remains convinced that it is through such ‘online communities of practice’ (Leask, 2010), that enhancements to teachers’ professional learning can be assured:

“...using e-tools such as online **collaboration** for the management of research projects over distance with **co-researchers** based in schools or other universities and **communicating** online through **synchronous** and **asynchronous communication** allows large scale research to be undertaken cost-effectively and in a timely manner” (Leask, 2010 p. 7)

A forensic analysis of this gobblet of text, in keeping with Foucault’s archaeological methodology, might focus on the words highlighted. Such words occur frequently in the text books of e-learning (See for example, Salmon, 2000; 2002; Kearsley, 2000; Thorne, 2004). They are equally axiomatic in that which Polsani named as ‘Network Learning’ (Polsani, 2002). Moreover, they were implicit in the four ‘i’s, identified in the model for teachers’ CPD, I wrote about in IM5 (see appendix 6). It is worth comparing this with some words of Friedman,

"I have found that using the simple notion of flatness to describe how more people can plug, play, compete, connect and collaborate with more equal power than before - which is what is happening in the world - really helps people who are trying to understand the essential impact of all the technological changes coming together today." (Friedman, 2006 p. x)

In section 2.3.2, I pointed to the importance of constructivism as an under-pinning pedagogy for technology-enabled learning. Conner et.al. note,

“The constructivist model comes from several contemporary cognitive theorists who began questioning the benefit of cognitive instruction for unknown information and knowledge. They adopted a different way to look at learning and understanding knowledge, Constructivists assert that knowledge is what we make of it. Without minds there would be no knowledge – it’s a function of how we create meaning from our experience.” (Conner et.al., 1996 p. 32).

This model of learning requires at least two participating selves, the pupil and its teacher. That encounter puts together two selves who bring to it ‘luggage’ from each of the networks in which they participate: family, friends, commercial, school, neighbourhood and so on – for ease I shall refer to these from now on as ‘domestic’ networks. Such DNA may or may not influence the nature, style or content of the knowledge generation encounter or ‘learning episode’. It will certainly affect, however, the behaviours therein and the perspective from which each participant views the encounter. This important phenomenological insight is clearly articulated by Natanson (1970) and Sokolowski (2000).

It is also the case that a learner may return to her/his ‘domestic’ networks affected by the learning episode and may transfer new knowledge acquired or distribute cognition to them, thus adding value to each network’s own metaphorical genetic make up. In the information sphere (Polsani, 2002), therefore, participatory activity which causes information to ‘flow’, also causes networks to learn.

### **Reflective analysis.**

In some earlier work for this thesis, I attempted to describe an optimal ‘place’ where technology, self and epistemology interlock in the service of knowledge generation. I produced a Venn Diagram and described the space at the interlocation of the three domains as the Zone of Optimal Auto/Pedagogy (ZOAP). The notion of over-lapping domains and zones remains relevant to the study. There are frequent references made above to the networks contributing to the generation and development of my knowledge, skills and understanding. Some of these are human, some technological, some formal and many informal. Wenger et. al (2010) have come to describe these networks as ‘Digital Habitats’. Polsani argues that there is no distinction to be made between a human and a technological network, they are one and the same, since

technology is the outcome of human thought processes and, in turn, technology enables and empowers thought. For some, and I include myself in this, the very act of word-processing is predicated on 'doing as thinking'. This insight was pre-figured by Conner et.al. (1996 p. 30) who asserted, as seen earlier, that "without minds there would be no knowledge" Conner et.al. *ibid*). Leask (2010) argues that so-called Web 2.0 technologies enable this very activity.

"Online networks which encourage collaboration can deliberately build next practice on the foundation of yesterday's knowledge and incorporate tacit knowledge in the collaborative creation, sharing and testing of new knowledge.

In evaluations of CPD programmes, teachers often cite 'coffee break' conversations as being particularly helpful – these professional conversations are an example of 'tacit' knowledge sharing." (Leask 2010, p. 9)

Two things are noteworthy here. Leask endorses my assertion that in 21<sup>st</sup> Century learning human and technological networks merge and become one and the same thing. Secondly, a conversation is *de facto* not *tacit*. *Tacit* means 'to be silent' and therefore, unless Leask is using the term as an adaptation of Polanyi's notion of 'tacit knowledge being more than we have the capacity to tell' (Polanyi, 1961), what she means is rather 'implicit', 'accidental', 'informal' or spontaneous knowledge transfer. By way of illustration, it was in googling '*tacit*' to find an accurate definition of its meaning from inside the music notation tradition or from some other source, that I stumbled on those who have written about Polanyi's concept of 'tacit' knowledge (e.g. Jha, 1998). The point being, that human or technological networks may possess more information than they can tell, but it is through social interaction (communication), or performance that knowledge is seen or heard to exist. A network simply cannot be silent. 10 seconds in a network hub and switching room will convince anybody of the 'noise' that is necessary to make the internet work. Naughton captures this brilliantly:

"But switch the power on and something amazing happens. The machine comes to life! The disk drive begins to whirl, the screen shows signs of activity, noises emerge from the speakers. Eventually Windows '95 appears, with lots of little icons, ready to be clicked on, ready to go. Somehow, an inert object has been transformed into a powerful machine which can solve complex equations, track huge budgets, find - in seconds - a single word

in a haystack of half a million documents, build an index to a 120,000 word doctoral dissertation or do a thousand other things." (Naughton, 2000 p. 13)

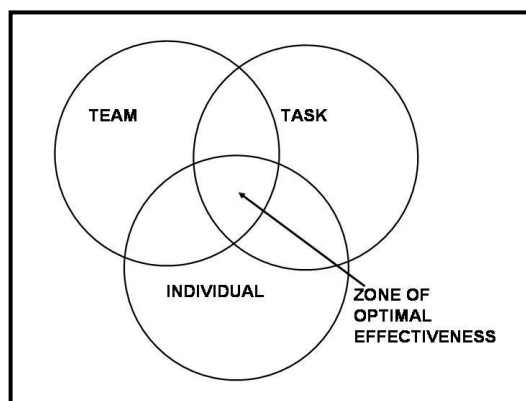
Social networking utilities such as facebook, yahoo groups, google groups, VLEs and so on., depend for their existence on the 'noise' created by their users. Leask goes on to argue that, "Research indicates that effective lifelong learning for professionals requires access to knowledge, information resources and appropriate learning processes which allow co-construction of new knowledge through working with peers and experts" (Leask 2010, p. 10). I would argue that this is a CPD iteration of that which Grimmitt describes as 'supplementary co-constructionism' (see Grimmitt, 2000 chapter 8). It certainly drove the TTRB's agenda (IM4), and accounts for the *interactive* aspects of IM5. It could be argued that 'noise' is a metaphor for the legitimate peripheral participation that is at the heart of a Community of Practice (Lave and Wenger, 2008).

There is, however, divergence between Leask and Wenger in their theoretical perspectives which is noteworthy. Lave and Wenger exhort the community of practice as the locus and gatekeeper of 'craft' knowledge (Lave and Wenger 2008). Leask conversely worries that introspection, conservatism and craft exclusivity can lead to the narrowing of foci, the recycling of old or redundant ideas and the maintenance of archaic practices, or at least those that have not been put to the test of rigorous research and development:

"The quality and content of the professional knowledge base underpinning educational practice and teacher education, and the knowledge and training of teacher educators and the ways that knowledge transfer takes place, are taken as unproblematic as though these were magic static ingredients. There are of course many websites and documents giving teaching tips and advice to teachers (few giving advice to teacher educators). However a scrutiny of such advice as often as not reveals a lack of citation of any evidence." (Leask 2010, p. 6)

So there is an important tension to be maintained between the need to bring practitioners together in some form of human network against the need to stimulate and supplement this network with expertise that derives from wider learning. Web 2.0 technologies can help in this regard because they can enable formal knowledge generators to transfer that knowledge more quickly and efficiently than in traditional dissemination strategies. Indeed, the development of the network may, of itself, be the locus of further knowledge generation moments.

Of relevance to this study is the location of myself at the heart of each of the overlapping/interlocking networks that have been described in this section. The theoretically-imbued IMs indicate variously how my participation, however peripheral, in recreational, practice, professional and academic networks has been instrumental in the development of this thesis. In order to show this in more detail I have developed a Venn Diagram modelled on the Adair's three-circle model first written about in *Action-Centred Leadership* (Adair, 1973 or 2002). He looked at effectiveness in teams and his use of Venn diagrams was transferred to the domain of leadership education. His model might be presented as that at figure 25.



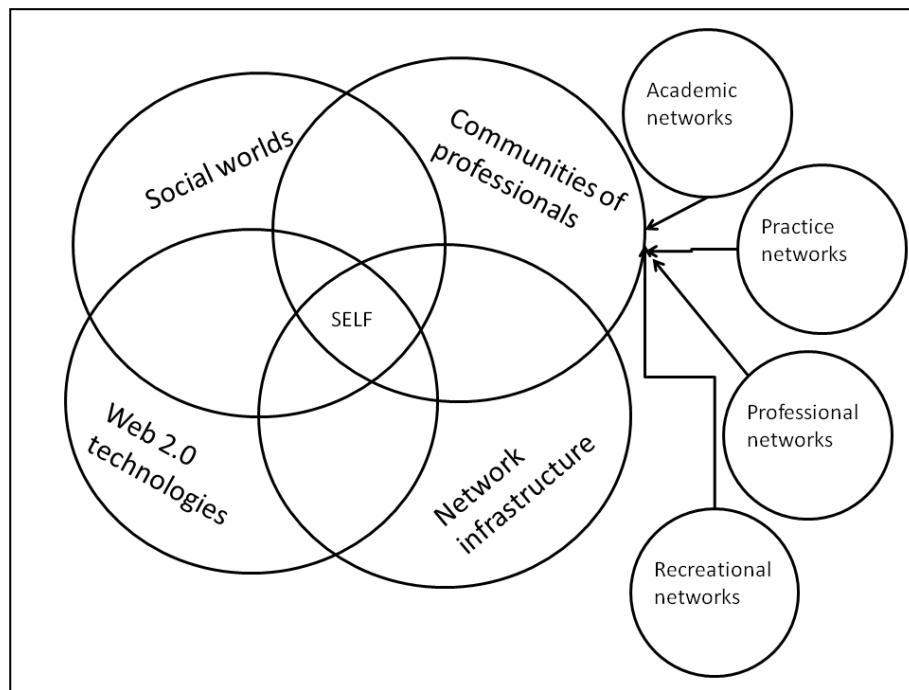
**Figure 25: Adair's 'zone of optimal effectiveness'**

As a military man, Adair's interest was in how to make effective combat teams ready for action in 'theatre'. His notion was that the sum of the parts was greater than the individual strengths of any particular member of the team and that all teams were at their most effective when they had a specific task to achieve.

Having acknowledged the provenance of the term, it is necessary to move on since this study is not specifically within the field of educational leadership and management or military strategy.



It is, however, about how effective learning is mediated by technology in the learning journeys of many professional educators. The use of a diagram such as this has helped me to structure my reflections since it enables me to indicate the complexity of the challenge and to model the dynamism of networks and the inter-relatedness of human experience which is so fundamental to an understanding of auto/pedagogy.



**Figure 26: An extending and complex Venn diagram**

As can be seen, my self is at the centre of a multitude of networks, formal and informal learning opportunities and encounters with a vast array of technologies all of which, I would argue, have had an impact on my professional life and the learning which has gone alongside it.

#### 4.3.4: Analytical Reflection on IMs Against the Concept ‘New’

“Constructivist approaches work well when we operate with constantly changing information. If education is to become the soul of the new information systems industry, we must learn better ways to deal with the unstructured, the undefined and the unknown.” (Conner et.al., 1996 p. 29)

The last section ended with a description of how networks could operate in the 21<sup>st</sup> Century as constructivist learning hubs. The quotation above is used here because it draws together three important considerations for this study: my professional context as a teacher; my professional interest in technology as an aid to learning and the critical question of knowledge. In short, self, knowledge and (information) technology - the domains in which I was reading, at the outset of this research process.

I stumbled across the quotation when looking for a datum to support another claim I was going to make. But, as has so often been the case with this study, there it was as a dialogic reference point to all that has been building through this chapter in my spiralling and cyclical reflexive activity around the IMs. Glaser is useful here too:

“Praxis is an unusual term. It means that activity is followed by reflection on that activity and that more activity and reflection follow. An experiential learning cycle guarantees praxis. Experiencing and reflecting are built into the process.” (Glaser, 2002 p. 14)

Whilst I am not convinced that this definition of *praxis* fits well with the post-marxian usage in Gutierrez’s work (1971 – see section 2.3), nor that it has a place in corporate organisational theory, it is helpful in the present context because it reminds me of the reflexive processes through which I have been every time I have encountered a new technological challenge in my career.

The fourth concept of the framework ‘New’ ( $N_4$ ), is characterised by the application of new learning in new contexts. More than any other aspect of that which I am increasingly inclined to

describe as auto/pedagogy, 'new-ness' is about the active participation (see Polanyi, 1962) and experimentation (see Kolb, 2005, Glaser, 2002 and Conner et.al. 1996) of a self, in a new context which is however dependent on that which came before – prior learning.

Chronologically reflecting on each IM renders the following series of illustrations of what I mean:

In IM1, I had used a computer, albeit a tape-driven games console and a BBC Basic Computer at Cardinal Newman School sometime in 1988-9. I carried this very basic knowledge and skills (keyboard skills and floppy disk storage skills) into the new learning context focused on the RM Nimbus machine that I acquired.

In IM2, I had all the file data storage and retrieval expertise and experience which I carried forward into the new learning around the development of RE-Net Version 1.0.

In IM3, I had all the meta-cognitive searching skills I had developed over time which I could apply in the context of looking for information for the new learning context around the E-China project.

In IM4, I had all the experience of writing web pages and working in and around databases that was carried forward into the new learning context of meta-data tagging and the creation of keyword schemas.

In IM5, I had the benefit of having produced think pieces before in a range of contexts as well as the specific insight of Fullan (1999) on *i*-ness as well as the emerging *i*-ness of the Mac-world.

Looking back, I am certain that technology was the catalyst for change in each of these career-shifting experiences. I believe this is what Sherry Turkle was referring to when she wrote,

“Technology catalyses changes not only in what we do but in how we think. It changes people’s awareness of themselves, of one another, of their relationship with the world.”  
(Turkle, 1990 p.263)

#### ***4.4: Stage 4 - Analysis by case study 'logic' rules***

Reflections on the illustrative moments, once they had been recorded, resulted in a positive tutorial experience from which emerged the view that these "streams of consciousness" were useful as 'theoretically-imbued instances' which contribute potentially to the development of the theoretical framework. If the model is valid, it is legitimate to propose that these illustrative moments have contributed significantly to the definition and description of the first three aspects of that framework.

The purpose of this section is to explore how they might, inter-textually, interactively and thematically further bolster support for the hypothesis. This would lead then to a series of propositions about the viability of the model as a tool for professional learning in the 21st Century. To that end, I intend to explore in greater detail one of the moments using the emerging framework itself and then collate the outcomes of that process into a conclusion which sets out these potential propositions. In so doing, I intend to show that the eclectic survey of the literature submitted at an earlier stage in the doctoral process provided the foundations for the theoretical model that is currently being explored.

As stated previously, metaphorically, the theoretical framework is like a bean-growers' 'wigwam' of canes intersecting some distance above the ground. Strength is added to this framework by the distance it is embedded in the soil. In my model, each cane represents one of the four strands of literature I consulted at the outset, acknowledging that there is a whole 'subsoil' of literature that remains undisturbed by my digging. The four 'canes' draw to the 'surface' the foundational knowledge on which stands the thesis, in this case the proposed framework. Please note, this is not an error in my logic. In chapter 2, three accounts were given

of the underpinning literature in the interlocking domains of knowledge/epistemology, self and technology. As indicated at the end of chapter 2, a decision was taken to take out a previously-written section on learning but to weave professional learning theory in and through the rest of the text. Figure 20 shows the three domains remaining as named parts of the sub-soil and so my reference here is part historic, thereby showing the development of thought through this process and also the reality that, although hidden, there is a dependency on other contingent discourses.

Strength is further added to the structure by ties at the intersection of the canes as well as the horizontally threaded wires that connect the canes at appropriate points. This section of the study is an attempt to show how the theoretically-imbued illustrative moments provide this thematic though vertically-oriented strengthening of the theoretical framework.

The seminal insight of Polanyi (1962) is that knowledge is brought to life in the experience(s) of human beings and becomes meaningful when the person ‘owns’ and understands the empirical phenomena before them. What I propose to do here is to reflect dialogically on one such phenomenon as a way of evincing the hypothesis that it is in the joining up of the four strands and making explicit the connections between them, through which I grew and developed as a professional.

The chosen illustrative moment in focus will be IM3 – the New Zealand experience. This has been selected for the following reasons:

1. The trip to New Zealand can be evaluated as an *a priori* professional learning experience – I was attending a conference with the stated intention of developing further my knowledge, skills and understanding in e-learning. The trip was funded as a cost-effective way of ‘plugging into’ a pre-existing professional community and thereby

gaining access to intellectual capital, global experts and all the contemporary papers in the field.

2. Conscious of the potential power of this as a learning opportunity, I committed to keeping a professional log of learning whilst travelling. Although, I could have done this electronically, I chose to record my thoughts and reflections on paper. A scanned version of this 'journal' is supplied as appendix 1, and is offered as a self-referential artefact that triangulates the "stream of consciousness" account offered in IM3 (appendix 4).
3. This third IM marks a transition in my professional development, since it was at this time that I became aware of the intersection of my prior knowledge, constructionist pedagogies, technologised networks and the impact that these were all having on the development of my professional 'self'. The subsequent IMs are more illustrative of my experimentation of this embryonic framework in structured professional contexts where it can be argued that I was sub-consciously and then self-consciously 'playing' with the framework.

On re-reading my hand-written diary of the New Zealand journey, as part of the dialogical-reflexive process for this study, I was reminded of events that had slipped from my mind but was able to corroborate phenomena that I thought were true but for which I had no tangible evidence, such as the names of some of the academics whose sessions I had attended like Lewis (see 2002).

Excavating the New Zealand experience against the emerging auto/pedagogic framework produces the following outcomes.

## Need

The ‘need’ for professional learning in IM3 relates to the original motivations for working on the so-called ‘E-China’ project. On receiving that project to look after, I became aware of the huge amount of knowledge, skills and understanding I would need to acquire in order to lead on it successfully. I rationalised that I would need to find out, for example:

- The philosophy and practice of distance education;
- The technological challenges of supporting  $x$  million concurrent users of an online system within the construct of ‘English as an additional language’;
- How the current Chinese education system operated and the contemporary arrangements for Chinese teacher education and professional development;
- The realities of regionalised technology infrastructure in China;
- The e-moderating<sup>68</sup> capabilities of my colleagues and partners.

It seemed logical, therefore, to get close to the professional communities developing intellectual capital in distance education, e-learning and inter-cultural education. APSCE – the Asia Society for Computers in Education is an organisation that brings together academics working across all these disciplines. The conference itself, and the 2005 ICCE conference which I subsequently attended in Singapore, gave me access to these people who presented the latest tools for e-learning, published research work on the impacts of programmes delivered through the medium of e-learning, were developing networked communities of practice and also understood the challenges of taking their colleagues away from the comfort zone of a traditional learning space. They also brought me into contact with Chinese academics and thus to the culture of education in the Far East. To explore the phenomenon of education as experienced by learners across Asia would be of tangential interest to this thesis and must therefore be acknowledged but bypassed.

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<sup>68</sup> I have deliberately chosen to use this term here, since I was, at the time, working under the influence of Salmon’s five stage model (2000)



Of greater relevance for the thesis was the very clear understanding among ‘western’ academics<sup>69</sup> of the changes to pedagogy and andragogy being wrought by advances in technology.

At that time, in the evolution of technology in education, research was being presented about:

- the nature of automated pedagogical agents,
- software clients that could facilitate e-learning<sub>1</sub>,
- knowledge generation, acquisition and transfer in e-enabled settings<sub>2</sub>,
- the outcomes of programmes delivered ‘online’

In my professional judgement this was the very community I needed to visit in order to gain the knowledge required to deliver on the E-China initiative.

## **Knowledge**

Elsewhere in this study, I have expressed the opinion that a self can only make progress in learning if it has some prior knowledge on which to draw, including that derived from experience. Developments in pedagogy tend to be evolutionary rather than revolutionary as theorists apply learning derived in one set of experiences to new or emerging contexts (e.g. the various subsets of constructivist pedagogy). I was already aware of the central tenets of e-learning through background reading (e.g. Salmon 2000, 2002; Kearsley 2000; Poole et. al. 1998) and was thus able to identify which communities it would be worth accessing. In looking for support for the E-China project, I was able to apply meta-cognitive principles to the key words inserted into search engines. Moreover, on arrival at the conference, I was able to select appropriately the papers and presentations which were most likely to be of interest or whose

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<sup>69</sup> By this I mean those from the UK, the USA and Canada and from mainland Europe

utility I had evaluated in terms of relevance for the ongoing project. A lack of prior knowledge would have resulted in me arriving at the equivalent of a sweetshop as a sweet-toothed five year old with unlimited money but a limit of three days in which to spend it.

In the informal learning experiences of that trip, it was my prior knowledge of Maori culture that lead me to *Te Papa* and the National Maori Centre at Rotorua and thus to the moments of enlightenment, I experienced in those places. Knowledge of French viticulture was pre-informative of the processes adopted now by the New Zealand wine industry and helped me make sense of an important phenomenon for this study: the re-working of ancient ideas and skills in a new context. I witnessed craft knowledge being handed down from generation to generation with emphases on quality and replication. Knowledge about how to do things, was seamlessly integrated with actual practice of the craft. The architects of the *Marae* at *Te Papa* brought forward the craft knowledge and skills of their ancestral heritage but brilliantly meshed it with contemporary technical knowledge about materials harvested from sustainable plantations (see IM3, appendix 4).

In light of the above, and in this self-conscious exercise of dialogical reflexivity, it is, perhaps, not a surprise that I elected to attend Polsani's paper on 'knowledge flows' (Polsani, 2002, 1). That he is a philosopher now working on epistemology in e-learning settings was of secondary interest, but what he said, from a strong prior knowledge base of Western Philosophical traditions, validated for me his ideas for the future of knowledge. He introduced me to the concept of 'performative knowledge' and, as such, enabled me to understand that it was this that had led me to New Zealand in the first place. Knowledge, used to perform functions, especially where it allows one to participate in other knowledge generation events, is of far greater use than knowledge held in abstract.

## **Network**

Had I only joined in with the APSCE community as an outcome of that visit, it would have been a worthwhile trip. Returning in 2005, this time as a presenter, and participating in the information exchange that goes hand in hand with academic work of this nature has made it even more valuable and durable as an experience. I formed partnerships with other academics working in similar fields, got plugged into an even broader range of literature than I would have encountered with a more narrow UK focus. In this country, I believe that the JISC and its offshoots largely speaking control the intellectual domain of e-learning and grants for innovation tend to follow only their approved projects – it is the same with BECTA at Primary and Secondary education level. Around the Pacific Rim, however, academics and their students are genuinely designing the future in free, imaginative and creative ways. It is at institutions like Stanford Research International that the frontiers of what is possible are being pushed ever forward. Following the career of people like Jeremy Roschelle whom I met and worked with in Singapore, and his contribution to APSCE will always make participation in this particular network informing and enriching.

## **New**

A key finding of this trip to New Zealand was the concept of rhizomic networks and the way in which the internet replicates itself in lots of smaller networks in commerce, businesses, schools, universities and now even homes. This was the essence of Cisco's advertising campaign at the turn of the century. A subsidiary point was that each internet-enabled device operates as a node on this bigger network and acts metaphorically like the synapses of the brain in the neural networks that cause us to function as human beings.

In February 2003, I presented a paper at the Faculty's Development Day which reported on the outcomes of this study trip. It was in this paper that I suggested to colleagues that we ought to start making better educational use of the mobile 'nodes' we all carried in our pockets.

A second outcome of this process was internal secondment to the role of Director of Learning and Teaching with ICT in the Faculty. During the three year period in which I held that title, I applied many of the insights acquired there in the development of these 'new' ventures:

### **Activities that witness the impact of professional learning on my career development**

- The use of smartphones in lesson observation (XDA II project)
- The creation of a Faculty 'technology playground'
- A series of practice-sharing seminars in technology across the Faculty
- The development of the TTRB
- The inception and development of RE-Net
- The creation, validation and delivery of *iteach*
- The creation and validation of an MA in *ilearning*

## ***4.5 Summative reflections to chapter 4***

“I think I may have full meta-cognitive overload! Am becoming increasingly conscious of more fields of study: Meta-cognition, Artificial Intelligence and ‘Agent’ work, among a few” (Extract from New Zealand Journal See Appendix 1. pp. 324-325)

The above quotation signifies my state of mind at the end of the ICCE 2002 conference. It shows that this had been both a profound learning experience and also the start of a transition agenda for the next stage of my career. This would be the 'now what' of reflective practice as identified by Rolfe et. al. (2001) cited in Jasper (2003, p. 103) and conforms to the 'Action-oriented level of reflection' noted there. This is because from that moment on I began to look for ways to embed the insights gained to change practice across the Faculty back at CCCU. I started to apply the lessons learned in strategic and operational contexts, like, for example, the establishment of a Faculty-wide Remote and Mobile Working committee. I reflected that the way to embed change was to institutionalise the operational in much the same way as Fullan (1990) had indicated.

I would argue that my reflections in appendices 2-6 conform to Rolfe et al.'s 'What', given the descriptive nature of the reflections set out in a-e@t<sub>1</sub> in the second stage of my process. That activity helped to confirm, however, that the selected IMs did have similar characteristics and that in a simplistic sense, each of the Ns were, in the due proportions described earlier, present. This was something of a relief and contributed to the growing sense that I might be onto something.

Similarly, it is possible to map the findings of the third stage of my reflexive process to the 'So what' approach adopted by Rolfe et al. in the 'Theory and knowledge building level of reflection' (see Jasper 2003 p. 101). I argue this, because in their model, this is the stage at

where the theory begins to build. I found that analysing the objects horizontally, as suggested by the method, began to show that there were points of similarity between my IMs. For example, in every case, I had benefited from the intervention of a human pedagogical agent: Simon Stanford, Bob Bowie, Pithamber Polsani, Phil Sheffield and, tangentially, Tim Tatham. Or that, in each case, there had been an unexpected, immediate spin-off: I had learned to compute large numbers of exam percentages, I had developed a website for a family member, I had presented a paper in Singapore (Blamires and Hughes, 2005) and had one delivered in China (Hughes, 2006), I had founded RE-Net on the back of the TTRB technology and I had developed the *iteach* programme.

Having been through the auto/biographic analysis of those moments, I am now convinced they provide substantial evidence of an emerging framework for professional learning. In every case, I had a demonstrable need to learn something; I was dependent on prior knowledge, if only to kick-start the new learning process, I did learn from pedagogical agents, both human and technologised by engaging in both face-to-face and online collaborative activities and in every case - such as the unexpected ones cited above - I applied newly-acquired learning in different contexts and settings. Theoretically, the resonances between the IMs, even though some of them were separated by a distance of nearly twenty years indicates a coherence and correspondence on which a substantial case could be made.

That case was set out as an hypothesis in section 2.2x. From the perspective of the 'other side' of the research process I want to now convert hypothesis into a theory buttressed by the data derived from it.

It seems to me, that in my case, profound professional learning occurs when I have a career enhancing, or egotistical need to fulfil. I do not use either term in the pejorative sense in which they could be interpreted; rather they are coined with the degree of specificity that might have been afforded to them by Maslow (1943) or Freud (see Blum, 2003).

In keeping with the theoretical framework, I seem to make profound learning gains when I draw on prior knowledge, gleaned from active experimentation with or through already available technologies or mediated by the "words and works of others" (Kirkham, 2003). In the IMs, I find much evidence that points to my capacity to make connections, see similarities, transfer meaning, understanding or skills or to draw in insights and information from apparently disparate fields. The synergy of finding another philosopher, Pithamber Polsani, at ICCE 2002, is a potent example of  $N_2$  in action.

There is no surprise that a common theme in each of the IMs is the presence of technology as both the catalyst and facilitator of learning. I want to argue now that computers can act as independent pedagogical agents. This, I have come to see, happens in two ways. First, and in keeping with the theoretical framework, they provide the point of information flow across the world's vast 'network of networks'. This was what Polsani meant by 'Network Learning' (Polsani, 2002, 2). Mary Smith's students in Fiji (see appendix 4) could not have been on her education programme without their 'node on the beach'. Second, though whispered through the IMs, rather than in the foreground of my auto/biographic activity, they also provide to the user their own instrumentalism through 'pop-ups', inline help, replicated functionality and programmed 'tips'. The very fact of 'dialoguing' <<OK>> is an invitation to the user to participate in a decision-making process, which is, at the very least, a 'pause for thought'. If the

learner does not ask of themselves, at that point, "I wonder what if...", they run the risk of abrogating responsibility to the 'ghost in the machine' (Ryle, 2009).

I ~~want to go on to argue~~would posit that their agency is extended by their expert ~~use in the hands~~ise of a pedagogically well-informed programmer. The problem with 'instructional design', VLEs, and the learning technologists that I came across during the twenty years of active participation in this thought experiment was that they were not experts in facilitating learning. Nice powerpoints, whizzy multimedia productions and the menu-driven linkages to online repositories of pdfs or word documents that pass for 'virtual' learning environments, more often than not, fail to benefit from supplementary pedagogical/andragogical co-constructionist methodologies and end up unused or obsolete. This insight was emerging as we were building the *iteach* learning platform such that all the external evidence seems to point to effective agency in the materials and activities we wrote.

Dialogically and reflexively, what emerges from a chronological reading of the IMs is a feeling that they could be arrayed as a series of linked concentric, spiralling circles. They follow on, one from the other, because in each new instance, I was building from ~~previous~~earlier profound learning experiences. I will accept that my interpretations of what happened in each has been enhanced with the benefit of hindsight and the structured and systematic exploration to tease out meaning but I stand by the assertion, made at the ~~top~~beginning of this paragraph, that there is a sequence which is framed by the emergence of each new technology but is also the product of the gradual construction of my knowledge, skills and understanding. I was more or less ready to learn to use a computer because I could type ~~more or less~~. I was ready to code html pages because I understood the basics of programming. I was ready to explore pedagogical agency because I had accumulated considerable experience in making learning materials available



across web-based platforms. I was ready to explore meta-data because I knew about the importance of tagging web pages so that they turned up in keyword searches. I knew the power of *i*-ness because I had seen what an *ipod* could do. I also knew from my reading of Bloom (1953) and Kolb (1984) that nothing I had learned would stay fixed if I did not try it out in new and different contexts.

To garner evidential support for this short journey into theorising about profound professional learning derived from the research process, I offer now a summary of IM3. Reflections on the New Zealand experience, amplified by a re-reading of the journal lead me to the following assertions:

This was a profound professional learning experience because:

- 1 . I had a real need to get ‘up to speed’ with e-learning, distance education, appropriate education for different cultural settings and needed to immerse myself in the relevant discourses. [Arguably N<sub>1</sub>]
- 2 . I had to make use of my prior knowledge, skills and understanding to access an appropriate and cost-effective learning experience. [Arguably N<sub>2</sub>]
- 3 . I was able to participate in a professional learning community (one interpretation of network) which drew from the widest and most diverse group of academics one could muster in one place globally, leading to the enrichment of my own personal knowledge, skills and understanding. [Arguably N<sub>3</sub>]
- 4 . I was able to take the insights and wisdom acquired though this experience and apply them in new settings. [Arguably N<sub>4</sub>]

On page 334 of appendix 1, I present a hand-drawn diagram I created about the process for managing e-learning programmes in Higher Education. I did this in Takapuna on one night of the conference. Iteratively, I digitised this on return to the UK (see Appendix 1, p. 335) and used it frequently in the work I undertook on behalf of the Faculty at CCCU. On p. 336 of Appendix 1, I present a hand-written list of my key learning from the trip which I had forgotten about. I would argue now that every one of those items was 'rolled out' in the work I undertook over the next six years.

On reflection, I want to argue that I learned several things on that trip which catalysed my efforts and prompted such work. Reading from the top, I learned that:

1. ICT developments in school-based settings are most successful when support for the hardware, software and infrastructure is wrapped up in one managed service.  
  
Reflexively, I would argue now that the 'Building Schools for the Future' programme between 2007 and 2011 was a missed opportunity to build one-stop solutions for schools' ICT needs.
2. 'Problem-based' teaching, in the correct context, could lead to significant learning gains and even profound learning. My own experience at ICCE 2002 was a significant immersion in solutions-focused collaborative learning [my later attenuation of the descriptor for this type of pedagogic activity]. Reflexively, now, I would argue that this is 'true' but faces, in the UK, the real pressure coming from centrist policy-makers seeking to return to the didactic methods eschewed by the profession about thirty years ago.
3. 'Learning technologies' is a more helpful descriptor of the range of devices and strategies that were becoming available around 2002 to the professional learning community.

4. Web-based groups could be powerful agents for learning in literally global settings - the technology existed then to join academics up and, ten years on, is gradually being adopted.
5. A mixed-economy of pedagogical agents is necessary for a truly profound learning experience: I like my alliterative list of principles, paper, portals, peers, personal tutors as it makes the point that no one method or strategy is sufficient.
6. There was utility in setting up a one-day show where, for example, colleagues could explore hard and software, meet technicians and seek wisdom and expertise from them and also examine learning and teaching strategies in a non-threatening and comfortable environment.
7. That, in other parts of the world, a semester-based system for organising the calendar in universities was proving productive as education moved into the 21st Century
8. It was considered appropriate, to put a sign on the door of an academic's office saying, "I'm teaching my online class", as a defence against administrators and bureaucrats from the old world who consider that teaching can only take place in a formal classroom setting.

It is this last point that had the most lasting effect on me and became a central tenet of all that we did on the *iteach* programme. A truly profound moment of learning which I acted on in a spirit of true dialogic, reflexive *orthopraxy*.

In a paper (2008) entitled 'Description of Methodology', which I put together to clarify to the team how I was to make sense of the research objects, I wrote that "the final stage of the research process will be therefore the analysis of the five IMs to explore their:

- Coherence as a set of signifiers,

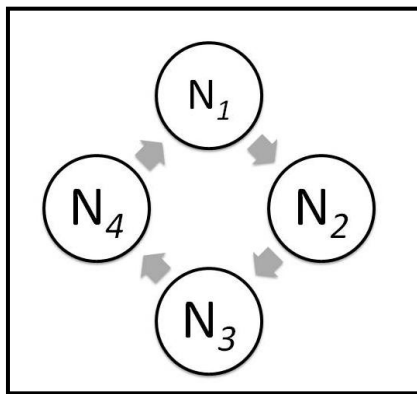
- Patterns of similarity and difference,
- Signification of underlying and enduring logic and,
- Likelihood of replication in other contexts, settings or with other people.”

This conclusion to chapter 4 is an attempt to do just that. The conclusions set out in chapter 5 are over-arching conclusions to the whole study and seek to point up ways forward for further research and development, practitioner adoption and to make the case for an original contribution to the field. It should be noted that with three further years' study, the process is inevitably different from that conceptualised above, as an outcome of the extensive impact on my thinking caused by engagement in the process. Here is a short reflection I wrote in about 2009 which evidences this (as in the paragraphs above, I have added into this latest edition, the coding schema that has evolved out of the on-going developmental work).

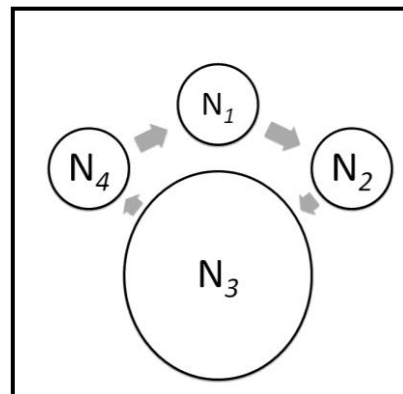
IM3 seems to present signifiers of each of the four confluent strands of literature. It shows clearly similarities with the first two IM's where there was demonstrable need to acquire knowledge, skills and understanding ( $N_1$ ) and the exploitation of prior knowledge ( $N_2$ ). It also signifies an underlying logic as it fits the theoretical framework perfectly, evincing all the key characteristics. Furthermore, the artefacts presented in appendix 1 (pp. 334-336) show clearly the launch pad for future professional work where I was embedding the findings of this professional learning journey in new settings and contexts. Above all, the impact on my professional and personal self was incalculable. If learning is change...

Analytically, reflecting on IM3 now (and in the light of all that has been learned) leads me to attenuate the output accordingly.

Of greatest note is that the significance, relevance and evidence of  $N_3$  (in this IM) outweighs that of  $N_1$ ,  $N_2$  and  $N_4$ . This raises the question of the proportionality of the framework. Far from being the rigid structure that I drew out at the end of chapter 3 with each factor in equal measure, I have to acknowledge now that the framework needs to be seen more loosely, flexibly and proportionately. A latterly-emerging finding (in metaphorical terms) is of the 'elasticity' of the framework which stretches, reshapes, comes and goes according to the degree of N-ness evinced in each IM. Thus a pictorial representation of IM3 might look more like that at figure 28, if figure 27 is an hypothetical IM where the  $N$ s were in equal proportions:

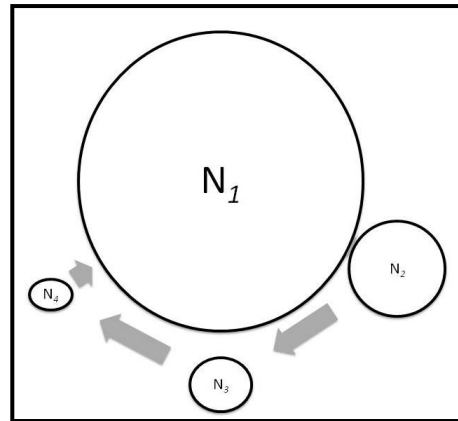


**Figure 27:  $N$ s in equal proportion**



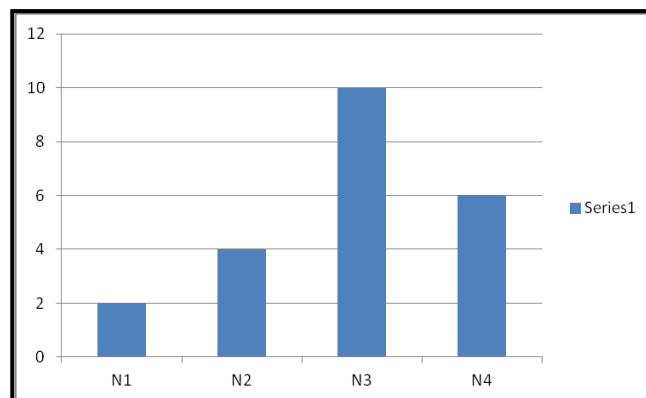
**Figure 28:  $N_3$  Dominant**

This latter insight need not diminish the potential power of the framework, indeed it may add further strength. I would argue now that in IM1  $N_1$  is pre-dominant, in the strictest sense of the word and that  $N_4$  was only of minimal significance and relevance since it was only in experimental contexts (i.e. the sanctuary of my home or office) that I was attempting to apply newly-acquired knowledge, skills or understanding in new contexts. (see figure 29 below).



**Figure 29:  $N_1$  Dominant**

What should be noted is the cyclical relationship of the  $N$ s in each of these diagrams. This is to represent the dynamic interplay between each in every IM, even if, as is now being said, the extent to which each  $N$  is relevant and significant in each instance changes. Were this to be quantified - and I have a reservation about so-doing in keeping with the non-positivist approach adopted by this study - in two-dimensional, flat, linear, graphical terms, it might be possible to posit  $N$ -ness in this way:

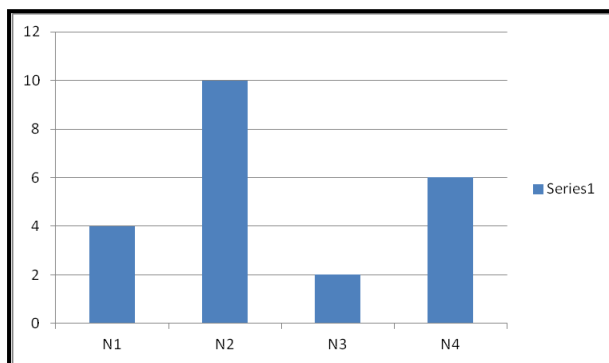


**Figure 30: The proportions of  $N$  in IM3**

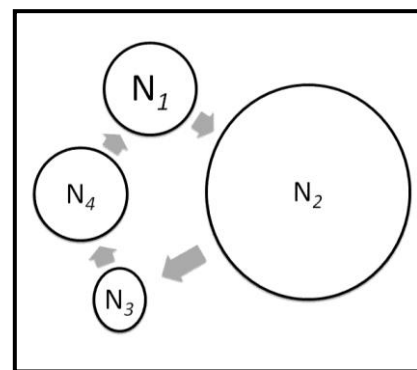
The graph in figure 30 is the outcome of a more numerical quantification of the degree to which each  $N$  was relevant and significant in IM3. I think this is because I was self-conscious that this was an opportunity to 'network'. Inevitably, the degree of  $N_2$ -ness is proportionately smaller simply because, I had less need to use prior knowledge than I did to network. It is important to

take from my theorising about the proportionality of the framework, that I am not saying that there is a hierarchy among the Ns. I am simply noticing that within an elastic framework of this sort, there are times when one factor will be present in greater proportion than another. This is a direct finding from the research since, at the outset, I expected them to be there in equal measure.

To explore this further, a similar chart for IM5 would have more or less the same levels of  $N_1$ -ness, higher levels of  $N_2$ -ness, lower levels of  $N_3$ -ness and highest levels of  $N_4$ -ness because, at that moment in time (c. 2006), I was really trying to apply new learning in lots of different contexts, especially the new ones I was creating. It was at that point in time, that I was, in career terms, behaving most like an academic, in attempting to generate new knowledge in a self-conscious way. Applying the same logic to IM2 would produce a chart that looked like that at figure 31, which in pictorial form would look more like that at figure 32:



**Figure 31:  $N_2$  Dominant**



**Figure 32:  $N_2$  Dominant (Chart)**

This is because the need I had to create RE-Net was a response to an intra-professional situation - the struggle I had to keep year 10 boys interested in RE GCSE. I had to use extensively my already-acquired IT knowledge, skills and understanding in order to learn to build web pages and this required me to learn the new skill of coding html. The reason for  $N_3$  being the smallest N factor in this IM is the fact that I had one ally in this process - Bob Bowie - as no-one else had started to code pages at the school and the internet was not the vast inter-connected library of

libraries with ready access to real, virtual or educational networks that exist today. A small note on N<sub>4</sub>-ness is relevant here. Everything we did at that time was experimental. Each day I would hear myself saying, "Wow, I can't believe I just did that... I wonder what would happen if I tried this again here... Oh, wow, that's worked too." A simple illustration follows.

Around that time, as a favour to a family member, I wrote a website for their business. I wanted to reflect the different colours of the product they were selling. I wondered how I could show this in the text of the pages so I guessed at and added an html markup `<font color = "blue">blue</>` into the code and to my astonishment (sense of awe, wonder, magic, echoes of Naughton, 2000), when I refreshed the page the selected text was indeed blue. I set about applying this new-found knowledge everywhere in the text a colour was indicated, also applying the coders' key skill at the time, key strokes `<ctrl, c>` and `<ctrl, v>`.

A further point to be made here is that the underpinning theoretical framework presented here was the outcome of my reflexive processes and existed in an overtly-unarticulated form, that is in my imagination. Now it exists in writing and in diagrammatic form and is thus becoming more publicly accessible but it remains theoretical and abstract as opposed to concrete and realisable. Nor is it possible to ascribe to it at this stage any more significance than the research objects warrant. What they warrant is a way of constructing an approach to exploring a pre-existing moment of potential significance. Someone else might evaluate a critical incident from their own learning journey against the framework asking if there was any evidence of need driving learning, prior knowledge facilitating engagement with a wealth of resources, participation in relevant communities of professionalism or the application of new insights in similar or totally different contexts. In that sense, they might begin to structure their reflections around the Ns, as I have done.



Alternatively, someone buying into the concept might start to design learning programmes around the framework. They might structure formal episodes to meet identified needs, build on prior experiences or knowledge, provide access to appropriate networks or insist that learning was tried out in new or different contexts. We did this with *iteach*, insisting that the chemists used easily accessible household products, to design and build experiments that children could 'do at home'.

Having played now reflexively with the proportionality of the framework, I have developing confidence about its rectitude and relevance. It does appear as though there is coherence in the Ns as a set of signifiers for some factors that in combination contribute to professional learning in the 21st Century.

Furthermore, the exercise around proportionality above does indicate several patterns of similarity and difference in the N-ness of the IMs. In each one, I think I have demonstrated conclusively that each is present though I have found latterly that their significance and relevance fluctuated according to the particular context in which I was operating. In IM4, N<sub>3</sub> would be the most significant since the whole of the TTRB project was predicated on the interoperability of human (CCCU, RM Ltd, BEI and Institute of Education, London), virtual and technologised (MySQL, ASP.net) networks.

Moreover, as time passed, and I became more conscious of the emerging framework and those things I needed to do in order to move forward in my own learning optimally, I started to use the framework deliberately. I have given one illustration of this from the *iteach* project above.

More recently, I worked with the development team at Pearson Publishing to migrate the product

suite into a 'programme' which started with a thorough-going needs analysis. Materials would then be provided to those whose 'audits' indicated specific learning needs. Since all of the material was provided as 'downloads', I am able to warrant that we had paid attention to the notion of network, in this case, as a noun. Moreover, many of the materials provided were designed to be used by professionals in analogous learning scenarios. A second example of the conscious operation of the framework is in more recent work undertaken in response to the archiving of the RE-Net website, along with its parent, the TTRB, and its older brothers and sisters, multiverse, Citized, and behaviour4learning. In appendix 5, I point to the creation of video materials for RE-Net and for the TTRB. I also reference this technological activity in vignette 5 (p. 125). The clamour ( $N_1$ ) for the re-publication of these materials in September 2011, from colleagues in the religious education HE community was sufficiently strong to prompt me to utilise some pre-existing webspace ( $N_2$ ) and host them there, publicise this through the Save RE facebook community ( $N_3$ ) and watch now as others use them in their own differentiated settings ( $N_4$ ). Reflecting on that last point inclines me to argue that this is a metaphor for the very thing about which I am talking. There will be students of RE, who I do not know and am very likely never to meet who will benefit from my pedagogical agency afforded to them through the medium of the internet. I would argue that if they make the personal commitment to finding my website, downloading the objects, viewing them, and reflecting on what they have learned there and acting on it in their practice, they will have unconsciously engaged in auto/pedagogy.

This, I now argue, signifies an underlying and enduring logic in both the framework and the process. In IM5, even though I now realize that my thinking was muddled, I was edging towards the adoption of a framework for teachers' professional learning in the 21st Century. I was aware that there were some necessary characteristics that would be evident in each professional

learning episode and that, once I had discovered the theory of case study logic (see Yin, 2003 pp.47ff), I was aware that the framework needed to straddle all five IMs. As evidenced above, it does indeed do this:

"An important step in all these replication procedures is the development of a rich theoretical framework. The framework needs to state the conditions under which a particular phenomenon is likely to be found (a literal replication) as well as the conditions when it is not likely to be found (a theoretical replication)" (Yin, 2003 p. 47-48)

Having established the theoretical framework - codified as  $I=N^4$  - and having named the phenomenon auto/pedagogy, I then began to cast about to see if there was a 'likelihood of replication in other contexts, settings or with other people' (see above). This insight I also derived from Yin (2003):

"The theoretical framework later becomes the vehicle for generalizing to new cases, again similar to the role played in cross-experiment designs." (Yin, 2003 p. 48)

This is echoed in the Jasper's description of Borton's 'So what' level of reflection:

"In this way a personal theory about the experience is created that is unique to the individual. He/she may draw on several sources to do this, including their own previous experiences, the knowledge and experience of others and accepted knowledge and theory, such as library sources." (Jasper, 2003 p. 99)

## **A Finding**

The last piece of analysis, which included a review of chapter 2 to check that it was still fit for purpose caused me to identify a missing link in the thesis. It seemed as though I needed more of a wrapper in which might sit my tentative theoretical framework. This was because I had begun to refer to it as a zone of auto/pedagogy even though I had not made the link back to the literary origins of such a concept. Symbolically, in the diagrams above, I have boundaried each IM with an image border. In chapter 3, I am explicit about the time boundaries for each of the IMs, but here the point is much more about the internal characteristics, or "essence" (after Moustakas, 1994) of n-ness within each IM, given that a two-dimensional model will only ever represent

part of the picture. Here then I try to articulate what I have found to be more like a 'zone' than a box.

What I have noticed in the IMs is a constantly spiralling, dialogic reflexive process where I willingly tackled new, technological challenges. Self-critically, this means that my theorising from here on in, should lean more towards a noematic phenomenological approach (Husserl, 2001) and away from a straight noetic analysis of the activities of the zone (Gurwitsch, 2010). Clearly, I need now to focus more on the structure of this 'zone' as it emerges more clearly formed from the research, especially if this zone is to be used to 'scaffold' further the professional learning episodes of my self going forward or those of other meaning making practitioners.

In each IM, I seem to have been aware that new technology had created a need for learning in that it had exposed a gap in knowledge, skills or understanding which needed to be closed. In a self-directed way and in every case I did this autonomously by drawing on existing knowledge, and seeking guidance and wisdom from the words and works of others. This had the effect of plugging me into, however peripherally, existing or emerging human or technological networks. At this point, I want to say that networks provide access to pedagogical/andragogical agents. Since the process of learning with technology is an inevitably ceaseless process as each new iteration requires new learning, so I had to apply constantly newly-acquired knowledge, skills and understanding in a whole range of new contexts or learning opportunities. Learning in the zone of auto/pedagogy (ZAP) is therefore personal, autonomous and technologised but it is also utterly dependent on the pedagogical agency of other humans and, in the 21<sup>st</sup> Century, personal computers.

## **The 'Zone' of Auto/Pedagogy**

At various points in the process of editing down the literature review, I noticed that I had quoted authors using the term 'zone' to describe a phenomenon that they were working with. I have referred to Vygotsky and his celebrated term, the Zone of Proximal Development (Vygotsky, 1954 or 1978). In this 'zone', learners are helped across a metaphorical or virtual gap between what they know or can do and that which is as yet beyond their reach. They are helped by an expert or tutor, teacher or pedagogical/andragogical agent [my term] who supplements the process with wisdom, insight or expertise by being close (or proximal) to them in the journey

"It is the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers." (Vygotsky, 1978 p. 86).

Implicit in this notion is the assessment of the learner's capabilities at the outset. Learning is deemed to have occurred when a subsequent assessment has been undertaken and there is evidence that the gap has been closed. At no point does the theoretical framework that is emerging from my research, provide a fixed point of entry, a training needs analysis or an entrance test. In my view, learners determine the point of engagement through their instinctive or visceral response to a need that 'pops up' in their career pathway. Similarly, only they know when learning has been sufficiently profound to enable them to assert that the gap has been closed and they can move on, perhaps to a new zone of auto/pedagogic activity.

Inside the zone, however, there are, according to the findings of my research, some pedagogical agents who, consciously or not, scaffold the learning experience, in keeping with the constructivist theories of Vygotsky (1978). Human agents may model, by example, "how they do it", which may be good enough for the learner. This certainly worked for me, looking back on the agency of the children over whose shoulders I looked (see appendix 2). Computer agents

may scaffold the experience by providing interactive devices that are programmed to lead the learner through the necessary procedures to execute a function accurately. Formal online learning programmes will use all manner of software tools to scaffold the learning experience so that time spent in the 'zone' is, at least, intentionally, purposeful and productive.

Later, I referred to Lewis (2002) and his adoption of this pre-dominant metaphor for e-learning constructs and his play with the idea in relation to knowledge-building environments. I reflected on this in relation to the Maori knowledge-building environments, I observed at Rotorua in New Zealand (see Appendices 1 and 4). Their 'treasure houses' acted as learning zones where the elders would dispense wisdom to their novices - very much the 'apprentice model' of adult learning. Characteristic of this 'zone' is the willingness of the expert tutor to share their wisdom and experience with the learner. Hence, why Lewis refers to the comparable technological communities in 16th Century Cremona, 18th Century Britain, 19th Century France and 1990s 'Silicon Valley'.

"This knowledge construction seems to have taken place in the United Kingdom due to a social community that evolved through coffee houses and clubs. Through face-to-face interaction, mechanisms for the application of scientific facts — coming over many centuries from communities as far apart as China and France — were created and tangible benefits accrued to the whole of society in the United Kingdom, then further afield and eventually worldwide." (Lewis, 2002 p. 7)

Schön (1987) uses the term "*zone*" to describe loci wherein practice may be analysed and investigated. He calls them 'practice-uncertainty, situations of confusion and messiness where you don't know what the problem is' (Schön, 1987 p. 11). In his work, it was the task of the reflective practitioner to investigate these 'zones' with a view to making specific adjustments to their practice in order that it improved. Unpicking the uncertainty, making sense of the confusion and messiness, would, it is argued, bring about change in the class or consulting room.

Where I differ in my approach from that articulated by Schön is in the belief that external help is usually required to make sense of the situation and thus learn from it. Thus I would argue that in a zone of auto/pedagogy, the reflexive professional also seeks pedagogical/andragogical agency from those more expert or experienced - this I would warrant to be true in my case when I take into consideration those whose agency I affirmed earlier. They may also go to the literature to look for insight or wisdom and thus they enter a more dialogic cycle, spiralling continually between the 'situation' (context or concrete experience), the words and works of others and their own interpretive activity. In my zone of auto/pedagogy, it is often the case that connections are made to apparently disparate phenomena such as the lyrics of songs, random other life experiences, incidents with similar characteristics or apparently chance conversations.

This may be serendipity, synergy, or it may be unconscious, blink-type behaviour (Gladwell, 2006), it may even be the outcome of a quasi-spiritual determinism but for me the result is always the same: progress is made in my learning. This is because the "zone" enables me to transfer meaning in and out; it enables me to structure reflections around some concepts in which I have increasing confidence and it also enables me to utilise skills, I have accumulated over twenty years of professional engagement with learning mediated by technology.

The five illustrative moments were selected for the reasons set out in chapter 3 but it is more than possible, serendipitously, sub-consciously or spiritually that they came to mind because they were 'optimal' in my learning journey. I have found through the process of this research that my learning was at its best when all four of the Ns were present in a 'moment' and I was in a particular zone.

## Chapter :5 Conclusions

The 'technological investigations' and philosophical reflections in which I have been engaging informally to start with and then in a rigorous and systematic way lead me to these conclusions:

- There appears to be a zone of optimal auto/pedagogy (ZOAP), when, in my professional journey, epistemology (in particular, my way of knowing), self and information and communications technology, interlock simultaneously and cause learning to happen.
- There are some consistently-occurring factors of this ZOAP which can be seen when one drills down into the narratives that comprise the illustrative moments for the study. Illustrative moments that were selected because they appeared to epitomise key professional learning episodes in my career. These four factors are identified by the phonic signifier 'N' (which stands for 'need', 'knowledge', 'network' and 'new').
- When these four factors are seen to interlock, they produce a theoretical framework that could be adopted by other professionals, evaluating their own learning, facing new challenges in their professional context or attempting to build curricula for structured CPD activities in the present economic climate. It might also be used by those considering "What next?" in their career or projecting forward a development pathway for it.

At the outset of the formal phase of this research, I had already believed that professional learning could be facilitated entirely by technological means and that the purpose of the research was to test that belief. I have come to realise, however, through wide-reading and the structured reflexive research process, that this initial hypothesis was the product of my own ambition *viz.* a professional development context facilitated entirely by computers. Self-criticality now enables

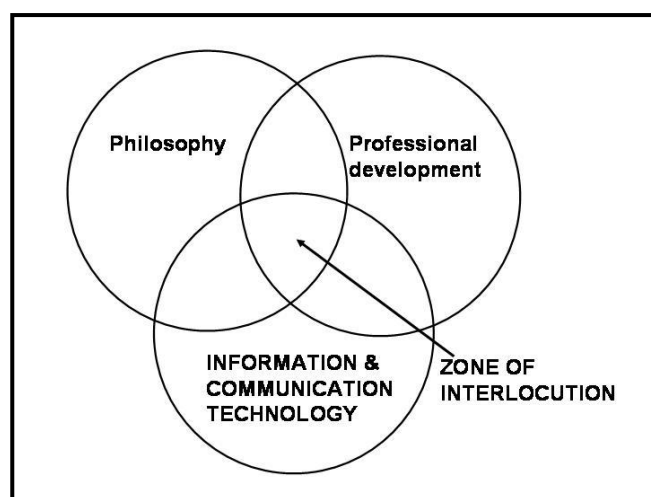


me to record that this was a naïve proposition. Research appears to show that learning may be mediated by technologised means but is most likely when this is one ‘agent’ among others (as was demonstrated in chapter 2).

As time has gone on it has been necessary to refine the hypothesis and to be clear about its scope since, as shown in chapter 2, this study straddles three apparently disparate fields: epistemology, self and information and communication technology. This is, however, part of its uniqueness since, for the first time, an attempt is being made to define the ‘space’ at their interlocation. I have chosen to call this the ‘zone of optimal auto/pedagogy’ because, in my career, as shown by appendices 1-6, each of the factors were present and both underpinned and catalysed my own professional learning. I use the adjective ‘optimal’ since it means ‘most favourable or advantageous’ (Hanks et.al., 1989) and the IMs I chose were those times when I perceived the conditions for learning to be precisely that.

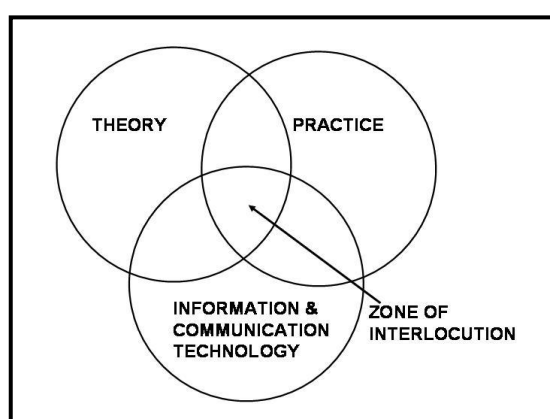
I believe that such a zone will exist for other informed practitioners seeking to make sense and meaning out of their own professional contexts. Once the framework is disseminated, they may well apply it consciously in their own work.

The work therefore has its origins in the philosophical domain of epistemology, the educational domain of teachers’ professional development and the growing domain of information and communications technology (ICT). Represented graphically, as a Venn diagram (see figure 33), the space to be defined is the *nexus* described here as the ‘zone of interlocation’.



**Figure 33: Zone of Interlocution**

Were the above model to be generalised for the professional development context it might look like that presented in figure 34:



**Figure 34: Generalist interpretation**

This is a model with which current education professionals might be familiar, since they are expected to take account of theory, integrate it with their daily work (practice) and access and deliver it through ICT (see [www.ttrb.ac.uk](http://www.ttrb.ac.uk) or [www.think.com](http://www.think.com)).

I have chosen to use the term 'theory', here, since it was this that we were exhorted to use on the TTRB by Leask and White (2004) and Leask (2010) when what they actually meant was 'evidence-based practice'. Atkinson and Claxton (2000), Dadds and Hart (2001), Hayes et. al. (2004) and Whitehead and McNiff (2006), albeit from widely differing perspectives, might argue that this is a limited understanding of 'theory' in educational settings. My intention in using the term here is to signal my belief that professional educators need to have a theoretical basis for their actions. This is in keeping with the insights of Leask et. al. (2004, 2010) but also

takes account of the contested notions of the nature of theory articulated by the other scholars above. The problematic term here is "evidence", since there is no consensus within the domain of education about what this is in reality. In this thesis, I am arguing strongly that there is evidence of a theoretical framework in the structured narration of illustrative moments in my career - a phenomenological and relativist perspective. Leask (2004, 2010), at the other end of the epistemological continuum insisted that those of us working on the TTRB only include projects, objects or articles which disseminated the outcomes of quantitative, positivist research and development programmes. Only this, would she tolerate as 'evidence' and referred to it as 'theory'. Indeed, for Leask, theory and fact were interchangeable. I am less convinced, because. I learned from Polanyi (1962) that facts are those things that a self warrants to be true, with the exception perhaps of 'pure' mathematical phenomena. Evidence is assembled by the believer to 'verify' the facts they wish to promote such that the earth was once believed to be flat by a human race yet to view it from a distance. Facts can be, therefore socially-constructed just as easily as they can be the outcome of 'scientific research'. Theory, it seems to me, exists at an epistemological stage before fact.

By way of illustration here, I would point to the use of statistical performance data derived from organisations like the Fischer Family Trust. This is accessible online and requires teachers to deploy a number of Information Technology (IT) skills such as the manipulation of data in MS Excel. Teachers are encouraged to make judgements about their pupils' progress from this data, to plan future learning episodes arising from it and thus to 'improve' their own practice. Those adopting a *modus operandi* in keeping with Leask's epistemological perspective will argue that these data represent facts about children's performance since they are statistically proven and thus quantifiably reliable. I would argue that whilst they are presented as 'fact', they can only ever be the outcome of arguably unreliable testing methods, such as the computation of a range

of contestable data, like the mean IDACI<sup>70</sup> outcomes for a school, with potentially subjective 'attainment on entry' data, arriving, as it does, from a diverse range of pre-school settings. When one takes into account that many of the predictions are also based, not on objective tests, but on subjective teacher assessments<sup>71</sup>, the data that are used to predict likely future performance are no more reliable than those I have cited here as evidence, in my life history, of auto/pedagogic activity. The point here is that what matters is the interpretation and use of such data by the professional.

If a teacher creates an hypothesis about what s/he needs to do to enable a child to cross their individual zone of proximal development in, say, maths, they are using theory appropriately. If they then apply the outcomes of their theorising in practice, then they are potentially more likely to catalyse or support learning gains in the child. They may use ICT to help them but other pedagogical agents may be more directly helpful or relevant.

The point being that it is, in my judgement, at the interlocation of these three phenomena - theory, practice and ICT - that learning gains are most readily made in knowledge, understanding and skill acquisition. A shorthand way of describing this is the term, 'progress'.

My definition of 'progress' is subtle, tentative, synthetic and multi-dimensional. Quite different from that used to measure, say, a child's progress against UK National Curriculum mandates. From the research, 'progress' seems to be a combination of the catalysing of learning activity, the development of new skills or attenuation of existing ones, the influence of abstract theoretical perspectives on practical contexts or situations, moments of cognitive 'fog'-busting insight - I

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<sup>70</sup> Income-Deprivation Affecting Children Index

<sup>71</sup> This is absolutely true of the data that was 'collected' in 2010 when many schools boycotted the Key Stage 2 SATS.

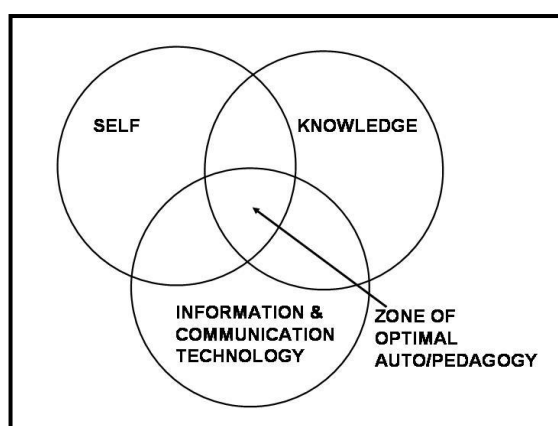
would call this revelation, even moments of 'awe and wonder' - and the development of confidence to try things out in analogous situations. This thesis provides no evidence that progress can be predicted; rather it provides *a posteriori* evidence that a self can demonstrate that progress in personal, professional learning has occurred.

How does this relate to my hypothesis? The answer to this question lies in the underlying assumption evinced in figure 34 which is that progress can be made at the interlocation of these three contrasting phenomena, if and when, education professionals make a personal commitment to the process of learning. It is my lived experienced that professional progress has been most assured when I worked in this zone of interlocation. The research shows that activity, over time, catalysed a radical overhaul of my understanding of pedagogy and taught me to hand learning over to the learners, rather than continue to operate didactically. It also shows that I took learning gained from working in one technologised setting and applied it in others successfully - in career terms. Moreover, I have now come to understand that in this zone my professional learning has been dependent on the agency of the 'words and works of others' or the machines they have programmed to operate pedagogically. Progress has also occurred when I have been instrumental in the development of technologies or their application; in short, where I have acted as a node on the 'network' and have caused information to 'flow'.

Looking back, it does appear as though I was motivated to learn about, with and through technology. Part of my 'focal theory' (Phillips and Pugh, 1994) was that significant professional learning gains could be made by other education professionals if they also choose to undertake structured work in this zone. To be clear, I do not think that the nexus is a theoretical place where professional learning has occurred, rather I think it is a theoretical place where learning may occur if the professional's personal motivation is 'switched on', where they have a

professional need to learn, have sufficient prior knowledge to access learning resources, where they can access supplementary expertise through human, real or virtual networks and where they can play and experiment with confidence.

What lies at the heart of my revised hypothesis is that 21<sup>st</sup> Century technologies have a crucial role to play in the capacity-building that is required among the education workforce since it can make accessible, and deliver learning gains to education professionals in personal or workplace settings, which would otherwise preclude them. This, I believe, is possible since technology enables supplementary pedagogical/andragogical, social co-constructionist approaches to learning – as were described in chapter 2 - and which derive from a conflation of the work of Vygotsky (1954 or 1978) and Grimmitt (2000). Bringing forward Adair's graphical methodology for a second time, it is possible to contend that this idea might be represented as in figure 35:



**Figure 35: Zone of optimal auto/pedagogy**

Here we see that the zone of interlocution comprises the overlapping of a self's interaction with a knowledge (evidence) base made possible through ICT. Note also the changed descriptor which is rendered now as auto/pedagogy. I have applied this term here since the research appears to

warrant my claim that, over time, I moved from unconscious acts of auto/pedagogy to self-conscious activity of this sort. The IMs show the practical operation of the underlying theoretical framework and the 'progress' I made in professional learning.

The use of this new term signifies the “active participation in the knower in the act of

understanding” (Polanyi, 1962 p. viii). It could thus be described as the ‘zone of optimal epistemology’ (ZOE) (which would be an intriguing coincidence of language since *Zoe* is the Greek word for ‘life’). Further reflection has caused me to move on from this description, since it would be linguistically tautological, as epistemology is the study of knowledge whereas this is a study of how knowledge is acquired, gathered, developed, mediated by, reflected on and applied in technologised settings by a self, and is thus more appropriately described as auto/pedagogy. Again, in the interests of clarity, theoretically, this is a self-directed phenomenon. The impetus for learning must come from the individual's own motivation but it can be augmented or even articulated by the factors identified in the thesis. Some professional learners may use my ideas as a starting point for the determination, identification or analysis of their own ZOAP.

A further refinement of the hypothesis is thus proffered by the following statement: significant professional learning gains can be made by other education professionals if they choose to undertake structured, reflexive work in this theoretical zone of optimal auto/pedagogy. The use of the word ‘other’ is made on the basis that the central starting point for the study is the analysis of my own autobiography which, as was shown in chapter 4, has been characterised by activities conducted in this theoretical zone. In short, I would contest that I have made considerable personal and professional gains by active participation in and reflection on learning episodes where technologies, or reflexive activities around them, have been at the centre of the professional enquiry.

### **The origins of ‘auto/pedagogy’**

In addition to the insights of Adair (2002) and the clear references to the ‘zone of proximal development’ identified by Vygotsky (1954 or 1978), I am also indebted to the notion of

auto/biography as articulated by, among others, Linden West (2004). Referred to in section 3.1.4, West used a case study approach to test his hypothesis that education could have a profound and therapeutic effect on those entering it later in lives that had hitherto been fragmented (West 2004 *ibid*). He noted the impact of personal life circumstances on the educational chances of those entering higher education and was clear about the value to the ‘self’ of engagement with formal learning episodes. This work he called “auto/biography” to signify the active participation of the self in life history work so that narratives do not remain two-dimensional and descriptive.

This epistemic method described in chapter 3 has been adopted and adapted for the present study but is taken a stage further by strengthening the emphasis on the self and how it comes to know from active participation in the deconstruction of its life history. To signify this re-iterated epistemology, a different term is used which imports the theoretical underpinning of auto/biography but which narrows the perspective to focus on the *learning* of a self, not just its story. Its etymology is thus: the word biography is substituted by the term pedagogy with the intention of signifying the role of the self in discerning what it can learn from active participation in self-critical analysis of autobiographic data.

Thus auto/pedagogy is, on the one hand, a deliberate, retrospective attempt to classify acts of professional learning caused by the participation of the ‘self’ in a systematic analysis of its own narrative. The epistemological scaffold for this assertion can be seen to comprise: personal knowledge acquired through active participation in thought experiments, which attempt to make sense of phenomena occurring in one’s autobiography. On the other, it is a term that I wish to ascribe to prospective, contemporary, self-conscious, self-directed acts of professional learning, whose intention is to enable the ‘putative knower’, to move from one state of being to another. I



will continue to need to learn new technologies, and where and how to apply them, in both personal and professional settings, and I will use auto/pedagogic insights derived from these studies to make such experiences profound. I shall continue to use the theoretical framework, I have created, to scaffold my own self-directed learning episodes.

It is a foundational tenet of this thesis that technology has made it possible for gains in knowledge to occur where it interlocks with a professional learning self, and the body(bodies) of knowledge that the self is seeking to acquire, to understand or to be able to evaluate critically.

Auto/pedagogy, in this case, is therefore the shorthand term for the process whereby a self is motivated or inspired to seek gains in knowledge for personal or professional reasons, where there is review of episodes from self-selected life history which are thought to be significant by the individual and where these incidents/moments are subjected to rigorous analysis using a schema that can be transferred to other aspects of the self's meaning making. For the purposes of this study, the task was to look for evidence of this epistemological approach in my own life history in order to discover whether there is validity in the assertion that professional learning may occur at the interlocation of knowledge, self and technology.

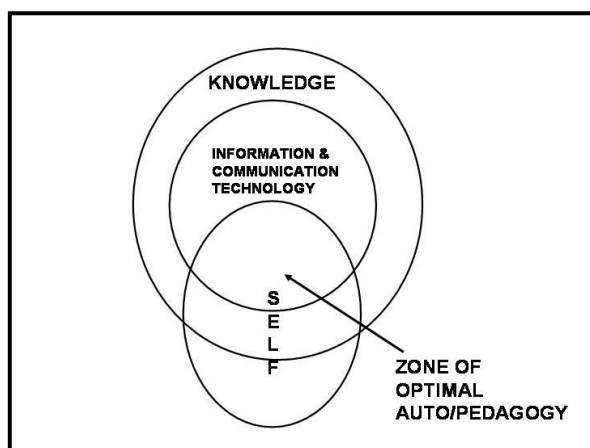
Auto/pedagogy is also, therefore, a reflexive methodology for an individual who wishes to understand how s/he comes to know what s/he knows and can do. It involves the critical analysis of learning experiences, the comparison of such self-referenced events to other phenomena and the participation of the self in engagement with resources selected for the contribution that they seem to offer. Arguably, auto/pedagogy is the four-factor phenomenon, explored in section 2.2x, further refined in 2.6, tabulated in 3.0 and reflected on in 3.3 which amounts to a theoretical framework where:

**Table 5: A four-factor schema for auto/pedagogy**

Factor	Description	Code
1.	A self notes that it has a self-referential reason for study,	$N_1$ - Need
2.	The self utilises its prior knowledge, skills or understanding to access appropriate learning resources	$N_2$ - kNowledge
3.	The self actively participates in the social co-construction of meaning through focused and relevant communities of practical or professional enquiry (after Wenger, 1998; 2001 – see Smith, 2003)	$N_3$ for Network
4.	The self critically evaluates these episodes and is able to apply new synthetic understandings in relevant practical or professional contexts.	$N_4$ - for New

I could have chosen to undertake a descriptive piece of work which narrated a range of learning experiences mediated by technology and undertaken by myself or a number of others in a collection of case studies in order to find empirical evidence of this theoretical phenomenon. Indeed, there are aspects of the work that resemble auto-ethnography, as described by, for example, Travers (2002), but I believe that adopting such a methodology would have been inappropriate because narrative accounts of what happened would not, on their own, enable me to tease out the key epistemic advances (another interpretation of ‘progress’) that are more likely to be achieved by an auto/biographic approach.

The self that is therefore at the heart of this study is not one that learns only from technologised learning episodes. Reading (from old technologies like books and journal articles), reflections on non-technologised life experiences and person-to-person interactions also shape the way my self is. To reflect this, a refined diagrammatic representation is offered as figure 37:



**Figure 36: Zone of optimal auto/pedagogy#2**

This diagram shows the reality that part of my self exists outside the professional domain, that there are parts of knowledge that I can and never will know and that there are vast amounts of ICT that I will never encounter.

It also points to an important insight for the study which is that all technology is knowledge but that not all knowledge is technology. There is knowledge which exists outside of technology. My point is that technology cannot, however, exist without knowledge. For this insight I am indebted to Polsani (2002, see IM3 and section 4.1.3). It seems appropriate, therefore to drop the word 'optimal' rendering the shorthand term for it simply ZAP. The nature of the ZAP and what occurs in it are the subject and has become the focus of this thesis and the object of the claim to originality to which this chapter is leading.

What figure 36 points to also, is the reality that part of my personal and professional life manifests the interlocution of self, knowledge and ICT. I cannot separate out my personal and professional lives. As evidenced in the study, learning undertaken, for example, to meet the needs of video capture for the family has been transferred into the professional domain. Similarly, learning undertaken, for example, to understand how 'wi-fi' technologies might be best deployed in classroom settings have been transferred back into the context of the family.

I would contend, therefore, that the illustrative moments that comprise the 'empirical' data (see chapter 4), provide evidence that my professional effectiveness has been most apparent when I, personally, have been working in this, albeit theoretical, zone of auto/pedagogy. Not all learners will benefit from such a zone; indeed some may not recognise it as meaningful in their life at all. Polsani (2002) again,

"Experiences in general are personal: they occur within an individual in an emotional, physical and spiritual level. Consequently, no two experiences are identical." (Polsani, 2002, 2 p. 5)

What goes on in the ZAP is a constantly spiralling, dialogic, reflexive process, similar to, but not the same as action research, where new technological challenges are tackled by a willing

professional learner. The learner is aware that this new technology has created a need for learning in that it has exposed a gap which needs to be closed in personal knowledge, skills and understanding. To do this the learner may draw on existing knowledge, and seek guidance and wisdom from the words and works of others, plugging in, however peripherally, to existing or emerging human or technological networks. Since the process of learning with technology is an inevitably ceaseless process as each new iteration of it requires new learning, so the learner has to apply constantly newly-acquired knowledge, skills and understanding in a whole range of new contexts or learning opportunities. All of this will be entirely related to a self-selected career pathway. Learning in the ZAP is personal, autonomous and technologised but it is also utterly dependent on the pedagogical agency of other humans and, in the 21<sup>st</sup> Century, personal computers.

“Computers, long a symbol of depersonalization, were recast as tools for ‘conviviality’ and ‘dream machines’. Computers, long a symbol of the power of the ‘big’ – big corporations, big institutions, big money – began to acquire an image as instruments for decentralization, community and personal autonomy.” (Turkle, 1990 p.268)

I cannot find any reference to Turkle’s ideas in the Jobs’ biography (Isaacson, 2011) but the contribution of her one-time husband, Seymour Papert, is alluded to in Waldrop’s history of complexity theory (Waldrop, 1992). As senior academics at the Massachusetts Institute of Technology (MIT) during the explosion of the information era, their ideas were prevalent and I wonder if it is in this quotation that we have the theoretical origins of the *iPod*.

As I indicated in IM5 and alluded to in the introduction, the existence of this hypothesis would have been impossible without the impetus to personalisation and autonomy wrought by that device. The etymological connections between autonomy and auto/pedagogy are clear when the words themselves are arrayed in the same sentence. The invention of the *iPod* has catalysed for me a change in my thinking about how teachers’ professional learning could be facilitated and

enabled. What I believe, as was the case for me back in 1989, is that this will be true when teachers recognise the autonomy they have to actively participate in learning programmes that fill the gaps in their knowledge, skills and understanding – the needs they have for professional learning.

This, then, is my living theory. I believe that the auto/biographic research process, written up in chapter 4, has generated some fresh theoretical perspectives on professional learning. They have emerged from the case study of myself, in keeping with the methodology of 'living theories', but on dissemination, I think these perspectives may be assimilated by others, re-worked to illuminate other professional contexts, provide meaning to others in analogous contexts or may be applied in programme development activities.

Were any of these to be the case, my living theory would acquire the status of 'conceptual underpinning' or 'theoretical perspective'. It could even become a methodological approach for others researching their own professional contexts. In my view, the theoretical framework is most applicable in the context of teacher initial or in-service education, but e-learning programmes in other professional disciplines might well benefit from the adoption or adaptation of this model.

### **The Claim to an Original Contribution**

There are three claims to an original contribution to the domain of professional learning I wish to make as outcomes of the research process undertaken in pursuit of these doctoral studies:

#### **1) A new theoretical framework for reflexively evaluating professional learning activities**

This project has been through three different phases: First, but only on reflection, a randomised, constructivist approach akin to that described by Conner et.al. (1996) aimed at creating a ‘domain’ encompassing all that is to do with computer-assisted learning. Second, the refinement of that constructivist adventure into a series of outputs, one of which was the four-factor framework of N-ness. Third, how the framework was applied to the illustrative moments. I was always sure that the IMs were significant in the story of my evolution as a professional. Having now applied rules and rigour to their analysis, I have assured myself that they were the correct objects to select, that they do provide coherent logic and as such support the theoretical framework through, and about which, they were written. I contend that the framework is, therefore, potentially useful, useable and ubiquitously applicable in professional learning contexts.

#### **2) A piece of ‘living theory’**

I assert that this is warranted true belief. In my case it was evinced through my own auto/biographic processes. As such, it stands as a living theory. I believe that others may find the method useful and the framework interesting were they apply it to their own life-histories or narratives and that its use might produce for them their own living theories about their own professional practice and context.

**3) A new term, 'auto/pedagogy', which could be deployed in professional learning contexts**

Nervous that someone else might have got there first, I have regularly ‘Googled’ the term auto/pedagogy. There does not appear to be anyone using this term currently, especially not as an outcome of a structured inquiry into an aspect of professional practice. I claim therefore that the term, “auto/pedagogy”, can be applied to the structured, theoretically-imbued, reflexive processes outlined above and that it is a legitimately new term to describe them. Moreover, I claim that in my auto/biography, there is a theoretical zone of auto/pedagogy (ZAP) wherein I am most effective as a self-directed and autonomous professional learner.

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## Appendices

## ***Appendix 1 – Scanned version of New Zealand Journal ( $A@t_0$ )***

This is support material for IM3

## The Journey

Sunday 24/11/02 - GMT

Sheila took me to Reigate Hill where I swapped to Grandad's van and ~~took~~ he then took me to Heathrow dropping me at Terminal 3 at about 10:00 am. As Air New Zealand had established a temporary stall for checking in but it was experiencing some technological challenges and as a result I was forced to wait about an hour to check in. This was finally achieved by 11:00 and so I made my way to Burger King for a coffee. Boarding commenced at about 1:00 and the plane, jam-packed, departed at about 3:10 GMT. To my surprise and delight the All Blacks, returning from their 'Autumn Tour' were on the plane and the guy next to me was returning having followed them around the UK and France.

I dozed fitfully and watched a couple of movies having read the paper (Observer). The meals and service were excellent. The words of Phil Collins came back to me: "Fenny old world in it" as we flew in over Beverly Hills I shuddered after being slightly.

### LOS ANGELES

(America - My first meeting with a yank on their home territory was, ironically, someone from the USOA - She confiscated my banana! - Always thought they had narcotic tendencies! The man at immigration made an 'in-your-face-counselling' session with Hughes seem like a breeze. They let me in! I stepped out into the early evening air but it was too dark to see much. Had an engaging chat with ex-state trooper Montinez from Texas who insisted I try his 'Jersey' - Looked more like 'Scag' to me but tasted 'mighty fine'. Boarding soon re-commenced and we sat down at around 7:30 pm to prepare for the 12 hour onward journey to NZ.

- 2 more movies
- lots more info 'videos'
- Some sleep
- Developing conversation with 'Ries Avery'. He gave me some good tips about eating and shopping in NZ. Suggested I save the South Island for a longer and more purposeful trip. Don't know what this jet lag fuss is all about!



AUCKLAND - 05:45 26/11/02 - GMT+13

Left Auckland International Airport at 07:00 26/11/02

66  
3/20.0  
18  
2.8

Car mileage showing 6125K - Blue Toyota Echo. Nice styling - small boot. A bit disappointing because I wanted to keep all things out of sight. Still! Mustn't grumble!

Found my way to State highway 1 in beautiful clear sunshine. It was exhilarating. A lovely cool breeze. Badly in need of a shave and a shower! Came down across deep forest and then a vast swampland punctuated by lakes, rivers and a whole mix of flora and fauna. Was reminded of Alan Bainbridge's joke about possums. They don't need to shoot them, they just run them over!

**HAMILTON** - Found my way round Hamilton having missed the short cut to Cambridge. Regretted not having made contact with Waikato University but would have been almost certainly incomprehensible by then! Nice looking place a bit like Bournemouth.

**LICHFIELD** - Stopped at a filling station for my first experience of Pils - \$2.60 - for pure stacc - and a bottle of diet Coke. Whole meal cut about 11:50 - amazing. Had to pull over a bit later for a sleep. - Head aching by now as a result of jet lag. Found a quiet picnic site and felt safe enough to nod off.

**TAUPO**

Alan Bainbridge was not joking! This was the most stunning view since Barmby Bay (1993) - It even beat Selkirk (1991). Across between Kilmarey and Garamie with a hint of Windermere. Beautiful. Stopped on lakeside at several points and watched a flying boat. Sheila phoned - wished she was here. Stopped at various 'scenic spots' along the way.

**NATIONAL TROUT CENTRE**

- Obviously had to stop here. Took a walk through the woods and ponds to see massive rainbows. **TONGARIRO**

**DESERT ROAD**

- Nothing in my life had prepared me for this - stunning! It just got more and more spectacular. The mountains became volcanoes scraping the sky and adorned with snow. Beautiful - Mt. Ngauruhoe. The SH1 came to a halt and we all moved on to a gravel road. Struggled to keep my eyes on it as each turn brought a new and more stunning view. The hills are either green, red or black. Palms mingle with pines - Fab! Saw the Cafe in a plane at Mangaweka on the Rangitikei River

**PALMERSTON NORTH** - Arrived at PN at 04:10 - Drove to Massey University - lovely campus - paid several m. Stopped out a few before settling on "Parilion" - \$91/night. Big bed - Shower table, chairs - Tard C + microwave. Crashed out at 8:00 after a \$2 - Steak + kidney - 66p for all that!! - Unbelievable - Cornish Street on the TV!



## MASSET UNIVERSITY 22/11/12

- Breakfast duly delivered to my room. What a meal!  
Chilled out because sleep was over but made use of all the facilities including the shower kettle and microwave.

**MARIAN COURT + MARY SIMPSON** - Arrived, as agreed, at 8:45 via the BP filling station that had kept me awake most of the night! I paid by ~~cash~~ card which worked - hooray! - £30 to fill the tank - Amazing! Marian met me at the bus stop and we went straight to her room. Met with Mary and we planned an agenda. Marian set up loads of meetings and then we rolled into a discussion of distance learning and related matters. There's a lot going on here which we can learn from. The distance learning experience is embedded deeply and e-modules replicate exactly the quality of student experience.

**MARIAN** - We exchanged OU stories and dealt with some stuff around leadership and management. We talked about distribution - She is right on! The woman's perspective has been overlooked. Must put eccl in touch with her.

**LUNCH AT THE UNIVERSITY** - Paid for by the Faculty.

**PRUE KYIE** - Professional Development Unit. Manager of teacher's professional learning. Prue gave me a fascinating insight into how teacher professional development is organized in NZ. Gave around her deep knowledge of the education system. She introduced me to the notion of 'devile' schools and talked about 'sore charge' schools. She also gave me an insight into 'compendium school' which has been in existence for many years. CF - NTSched. ret

**BILL ANDERSON** - Bill showed me round WebCT and we discussed the relative merits of proprietary VLEs over DIY. He advocates a clear approach supported by the techies. Is not going to ICCF because he has papers all over the show elsewhere. Bill has done his Ph.D. on distance education and knows the literature really well. Both he and Mary have enormous experience of successfully conducting distance learning and are leading edge women. They will be a useful ally.

**MARIAN + GERALD**

A fabulous evening drinking fine NZ wines, discussing OT Methodology and working around topics of children, spirituality, hierarchy, clergy, power and jet lag. Marian made grilled grapefruit, Brown + Seafood, and fresh strawberries with homemade ice-cream. This is lifestyle - NZ fashion. The house is set in 10 acres of hilly countryside in the Pongakiri valley to the South East of PN. They keep peacocks in the garden which has an abundance of the birdlife. Gerald was a Presbyterian minister, has been a teacher and now works as a builder. He has almost completely renovated and re-built the house which is simply stunning. It combines old colonial style with modern ergonomic simplicity. My room was amazing.

#52:45 on wine! Style!

Paid a visit to the teacher's resource centre. Bi-culturalism is very clear. Picked up a lovely maori storybook for Sarah.



**BREAKFAST** - As I was still suffering from jet lag I woke early in this fantastic bedroom set aside by Marion for me in their beautiful house. I sat out on the veranda from about 7:00 am and watched the pheasants, peacocks and other birds going about their morning business. The house sits in 10 acres with a completely separate bungalow, the pool that Gerald is building and fabulous plants everywhere. Gerald and then Marion joined me and then Marion made a ~~sea~~ genuinely healthy breakfast - off setting the day before! - Muesli-peaches and grapefruit juice - Fresh! It's no wonder they look so fit!

**MARK BROWN** - Broke Marion in and she left me with Mark Brown who is I guess the Phil Pore of Massey. He would define himself as a Learning Technologist and we talked about constructivism and Technology. He had interesting things to say about ICCE 2002 having refereed the papers. This guy is out on the edge and is critical of the panacea approach to ICT. He gave me his courseware for Learning and educational technology. He showed me his brilliant virtual school for using a problem-based approach to ICT integration into L&T. - E-mail correspondence! - MUSA

**IVAN BAILEY** - Ivan is in charge of a self-supporting unit at Massey that attempts to provide networking solutions to schools. We talked hardwired mainly and explored the principle of 'listening' to schools about their and their teachers' needs. This was really interesting. The technology that is in use probably lags behind UK (Cornwallis) but it is far more embedded and is used more creatively by teachers in the classroom. Interestingly at \$60/school for a full MS Windows XP (incl. OFFICE) - per annum. These Kiwis can drive a hard bargain. Lunch was taken back at May and Bill's house in the veranda over looking

**MARY SIMPSON** The All Blacks' training ground. Amazing! 19,600 students (Extensive) 2,000 F/T - EDOs 38K 10% F/T by distance. (incl. teach. ed.) Mary kindly took me through a real time investigation of her Level 3 teacher programme which focuses on professional practice and will lead to a 'supervised' teaching practice. She calls this a 'posting' which is not to be confused with a posting on a webboard. We talked about academic standards issues and the validation processes and the issue of on-line socialisation. Clearly web-based students have greater access to support than campus based ones! - Go! That one sorted then! Professional development activity must focus on de-learning andragogy. - Met the HOD - Prof. Wayne

**MARY + BILL** - Returned to Mary + Bill's for reflection time and to write up findings. This was again a very pleasant, enjoyable and relaxing evening. I did some reflective work while it was in my head. Bill went kayak racing! They know how to balance life and work here! Then Mary laid out cheese, fruit and biscuits. We 'had a beer' and swapped stories of over-indulgence and fine beers drunk round the world. Then we went into Palmerston North for dinner to a cafe called Moxies. Mary took a NZ Chardonnay to drink which was delightful and I had the most tender lamb steak imaginable. It was really fab. Conversation was in and out of academics and less cerebral stuff. lovely people. In the way back home we drove up to a viewing point to see

**Jet lag** I think jet lag must be setting in! I left my book on using new technologies in Mark Brown's office and my notepad and InContext pen back in Mary's room. I hope I have not put them out too much already. [wrote home] What night



Friday 29/11/12

6:30 a.m. I went to bed early (10:15) just after Sheila called. It must have been about 9:30 at home in the morning. I wonder why she is not at work. I hope everything is OK. Apparently Anna is off school. I hope this is not a bad sign of something about to kick off. One more meeting at Masey today with John O'Neill hopefully and then off to Wellington. Amazingly I feel as though the end is in sight already. Must make the most of the drive down today. Shame I didn't sleep for longer but feel well, relaxed and 'up for it'! Glad I got the battery on the camera charged but I suspect I may need to get a charger before I move on.

Had a great conversation with Bill and Mary about where to go over breakfast. The breakfast was really good and fresh apricots. Here's where I am going to head to Halswell hodge in Wellington. Must pick up some Rubbards mussels for breakfast.

Also talked to Bill about distance education and he told me about his handbook of distance education which is due out next year. That will be a must ~~buy~~ buy book before we get going properly with a computer enabled professional development model.

Came in to Masey for the last time and checked e-mails. Great one from Anna + Sarah! The rest of the stuff was puerile ~~and~~ rubbish from work.

Had a good chat with John O'Neill who was quite jet lagged. We talked about subject leadership and the politics of education. He even suggested a comparative research project - working on subject leadership in UK + NZ.

Damn! I might have to come back!

TOURIST AGAIN - Set off from Masey at about 12:15 having booked Halswell hodge at Bill + Mary's suggestion. Stopped for a pie + diet coke about 20 minutes later - 11:30 (£3.95)! It is so rugged down here. Drove by the Tararua Range which runs for 165K down to Wellington. Not as high as Tongariro but nonetheless impressive. It was quite warm and sunny so I stopped at Shannon for my picnic. Had a short stroll around and took photos of more mountains. Drove into 'Our Katara' which Alan had mentioned. Didn't really want to stop as I needed to get to Welly. Stopped at Otaki Forest hedges but was put off by the unwelcoming signs - Don't enter here: Christian Camp. Should have known really! Stopped again at Otaki Beach and photographed Kapiti Island which rises straight out of the sea. Awesome! The beach was grey and greavelly and quite windy. The sea was a grey blue and the island granitey and brooding. Clouds clung around its peaks. It was very beautiful. Drove on through territory which increasingly showed signs of Maori civilisation and culture. Will Katene is from here. Stopped for a 'comfort break' at Paraparaumu which was necessary as my concentration was waning! Would have liked to get out at Porirua to take the air but this is (SH!) the main drag down to the Wellington Peninsula and it is not allowed. The road runs along the foot of



the mountain and is 'washed' by the Tasman Sea on the other side!  
I am not convinced Sheila would like the drive!

WELLINGTON Nearer the South Pole now and it was clear from the weather that I was not going to see much. Fog had closed the airport and the drive in was commensurately hairy. Drove around the city to get my bearings and found the hotel. Checked in, changed and charmed! Had a few minutes of depressing cricket viewing on Sky! - Went for a walk; a long walk. Wellington is a city but it has 2 redeeming features Te Papa which I will go to in the morning and the harbour which has a huge esplanade frequented by joggers, cyclists, skaters (Archie Lanigre in huge dorm under) and pedestrians. Including an exploration of the shopping centre, the arts centre - most of which was closed except for the concert hall where PINK was appearing - and the Frank Kitts park (Naval memorials) and a visit to Ronald's place (£6.85 - about £2.20 for a super combo!) (was out for about 4 1/2 hours. Sarah phoned - missing her and the others! - and then went back for more Ashes depression! I cheered myself by writing some postcards which are not easy to come by it would seem. Fell asleep with Matthew Hayden going like a train! at about 10:30 and amazingly with one comfort break slept until 6:00 AM.

SATURDAY 30/11/02 Woke up at 6:00 to a fine beautiful morning, looking forward to today's sightseeing. This turned out to be another brilliant day. The breakfast was... over quix! An well 'est la vie'. I guess the clue to a city you are the less value for money you achieve. As soon as I had finished I checked out and left. Packed the car at Te Papa and went for a walk. Bought a slab of diet cakes and some really cool oversunglasses. The sun was out, the sky was blue and the harbour glistening. Watched some rowers doing their stuff in a manmade harbour behind the marina on the way to the post office.

TE PAPA - The lack of a dollar for the car park reduced the real time I had here so I decided to head just for the natural phenomena section and the Maori exhibition. The former was a cross between Madame Tussauds, Disney world and the Natural History Museum. It has been superbly well done and is really interesting and thought-provoking. It helps to explain why NZ is geographically like it is. The volcanoes are truly awe-inspiring and a powerful sleeping giant in the minds of NZers. I was, however, deeply moved by the Maori exhibition. The Maori at the heart is stunning - made, as it is, out of MOI - Sustainable development and all that. I had a great chat with one of the guides who explained it all to me and showed me how to rub salt on to 'green stone' (pounamu) to get it to shine (sandstone).



There was a palpable sense of the sacred here. Ancestor worship is predicated on the wisdom and knowledge of the elderly who thus derive Tapu (authority). It is their duty to pass this knowledge on to their children and so there is a powerful oral tradition. This was deeply spiritual and moved me. The carefully worded exhibition about the treaty of Waitangi gave pause for thought. I was reminded of CAFNA '92 and all that. The visit helped me reaffirm my belief in the need to respect the culture and customs of indigenous peoples and to celebrate diversity. I suspect there is much we can learn from Māori respect for the planet. It is interesting that they venerate a rather goddess of fertility too. *Fornibid person.*

**KARORI** - Wanting to avoid the normal tourist route and so headed out of Welly due west only to come to an abrupt dead end in a housing estate as Karori. Not a problem because it caused me to turn round and head into a wildlife park. I would have loved to have stayed there but felt urged to move on. Beautiful birds seem to be everywhere with pretty plumage or powerful claws. I saw many hawks and eagles today. I wonder if the absence of cats has anything to do with it! - The return journey gave me spectacular views over the harbor and bay. Stunning once again.

**UPPER HUTT** Decided to take a native lunch and so pulled off Str 2 (A bit like Tonbridge Rd!) and into this very flat city resting at the foothills of Tamarua National Park. Found Pak n' Save market and bought cheese and bananas and a multi-pack of cups.

**KAITIaki REGIONAL PARK** Stopped here for picnic in a brightly lit and beautiful valley which was packed with exotic wildlife, descendants of the Moa and more eagles! Wished I'd read the info before because I could have stopped by yet another stunning river - Crystal clear and sparkling. I waded down for a port. prandial and touched the water, the valleys stretched up and out in all directions - beautiful.

**RIMUTAKA SUMMIT** (This was one of those moments that sticks in your mind: it made the Italian look like a tip down Bluebell Hill! It would have been fine but for the locals who all need to 'shipstream' on your bumper. The scenery was just spectacular and so impressive in its colors and shades. At top there was a stopping place which allows you to get your breath back before going downhill again.

**RUAHINE RANGE** I realized I hadn't come very far when I checked the map and saw I was only at the gorge which I had passed on the other side on the way to Welly. At the end of this gorge there was a sudden explosion of mountains which turned out to be the Ruahine range and which flanked my drive on the west. This is the natural barrier that causes the Easton (Pacific) side to be more dry -> Thus good for wine-growing. The scenery remained spectacular though the ~~road~~ chose to be more calm and measured, long

**DANNEVIRKE** Straight stretch through Masterton, Carterton and on towards Hastings. Paused 1,000 k's here and was unimpressed by the very notable influence. This country is a fascinating series of ~~etc~~ contrasts all of which you bump into only after a few minutes in the previous. This is replicated by the radio stations which come and go incessantly. I wish I had bought some tapes. Had to stop for juice (£33. £11) for as car was low on fuel. - This is so cheap! With photographic stops I had been on the road for about 6 hours and was getting tired. Decided to just head for Napier. Found Sea Breeze without too much difficulty - opposite the Aquarium



**NAPIER** - I can now add the Pacific to my collection of Oceans! I am sitting in the covered Gallery of the most amazing B+B in this extraordinary town. It was destroyed by a ~~small~~ earthquake in the 1930s and was completely re-built in Art Deco style. This home has been done out to keep it en vogue. My room has been done in Chinese style. Very bright but beautifully comfortable. I love the TV stand! An old Grandfather clock came with the workings removed and the wood ~~the~~ <sup>the</sup> spare made under a shelf. Brilliant idea! The balcony looks out across the beach to the Pacific which is pounding huge waves against the shoreline. They make comish waves look like ripples in a millpond. The beach itself is shingly - almost volcanic shail - I walked all the way along it last night which was quite hard going. Then I wandered round the town and came across an Art Deco cathedral! The city itself is pretty small, like PN + Welly, but then if you have such fantastic countryside why live in a city! Café Society is well in place here but was more expensive than elsewhere so I had chicken and chips from 'Marg's Takeaway' for \$4.85 ( ) and went back to the beach to eat it. It was really tasty. I ~~also~~ made myself tea back at the B+B which I suspect is trying to create a sense of 'traveller camaraderie' like the YHA + Backpackers' lodges next door. I quite like the idea of a shared kitchen but ~~the~~ am glad I opted for an en-suite. Ironically last night I didn't need to comfort break! Art Deco is an interesting style - in some ways it's quite gaudy but in others it has a charm which surpasses the brightness of its colours. I'm debating whether to go and watch a dolphin show or go to church. I guess both would be spiritual experiences!

**LESK VALLEY** The problem with planning here is that it never quite comes off! I ended up chatting to Wendy and Jeff the proprietors of 'Sea Breeze' having spent some time talking to a couple of Dutch people who were the only other guests at the B+B. This was fine by me as they wanted to show off their newest decorations. It really was amazing. I asked Jeff about which way to go to Rotarua and he advised Taupo, so on an unmade up road did not sound appealing! Hawkes Bay is famous for its wine and so I decided to visit a vineyard - winery they call them here and visited the Linden Estate which is out on State Highway 5 in the direction of Taupo. It shows a tasting place with the Wishart vineyard. I was there ahead of the guide but had plenty of admin to attend to as well as looking at the beautiful mature vineyards which are reminiscent of Alsace (2002). I tried the Melot - and then a melot from Wishart. The Linden was better so I bought a souvenir! Not cheap but it will do nicely after the Mercier from Epornay in Christmas Day. Sadly felt the need to move on but not unusually for NZ ended up chatting with the hostess. We talked fishing and routes and she advised caution of the Taupo rd. little did I know that I was in for another stunning drive.



## Sunday 1st December 2002

**TE POTUE** - As the road climbed out of Haures Bay it became apparent that the weather was not going to be kind. It was nonetheless beautiful as cloud clung round the hilltops and the vegetation became more European. Lots of willow and elders. Every so often a pine forest broke up the landscape. Birds everywhere. Lots of possums. ... well, ex-possums. Must find out what those funny little birds are. They might be Tui, <sup>Actually Myna's</sup>

**TARANERA FOREST** - Sadly the rain, fog and clouds all conspired to limit visibility. I got the distinct impression that I was missing spectacular views as a result of the weather. The road wound in and out of hills, gorges, forests and plains. Every so often a small glimpse of beauty emerged on the edge of the moisture. Lots of evidence of logging!

**TE HAROTO** - I allowed myself to indulge in another NZ custom at the Tip Top cafe on the top of another mountain. \$2 for a mug of coffee, "Drink as much as you want." I had Irish cream with fresh cream! It was fabulous. The cafe was like a log shed but adorned with photos of the many passing vehicles that must pass through. Some spectacular photos of vehicles on fire. The toilets were equally "charming!"

**OPOTO FALLS** This was a very long way up. <sup>- white water rafting</sup>  
I tried several times to find a photo opportunity. I was either in the wrong place or the river was! The Waipunga river cuts right through an amazing gorge.

**TAKAPO** - I was reluctant to re-visit anywhere given the shortness of time available but the road meant it was inevitable. Still it gave me the chance to see that view again - Ngurahue was catching sunlight! I wound up to

**ARATIANA RAPIDS** Pak'n Save for some provisions. Want to avoid chips or spending money on ~~fast~~ a meal again.

Determined not to stop again until Rotorua I was once again tempted "off piste" to see these stunning waterways. Next time I come I am definitely going on a jet boat down the rapids! I can't get over the clarity of the water. It was really hot standing on the bridge looking down onto the Waikato. Then I

**WAI-O-TAPU** - heard of the "long white cloud (Aotearoa)", My ...  
This was more like the land of the deep, dark

thunder cloud! - Heaved in to the visitor centre and was surprised by the \$16.50 entrance fee. Given everything else is free or cheap.... Absolutely worth every cent. This is truly a thermal wonderland with the most amazing volcanic features. The guide said the tour would last about an hour and a quarter which it did but it was a multi-sensory experience. Colours vivid, sounds eerie, smells powerful and at times unpleasant but hey! I was standing on a live volcano. This was uppy + dunny - my work for the day!

**ROTORUA** - **PARAWATI LAKESIDE MOTEL - Ngongotaha**

It's about 9:10 and I am bushed! It's lovely to feel sleepy or a weary. The outdoor life has much to commend it - why can't it fit with modern Britain? I spent about an hour watching the seysers on the far side of Rotorua <sup>here</sup> which I am staying. The motel has its own mooring and mini beach and it has all sorts of gear to borrow. The unit is old but comfortable and costs only £20.00. There are 3 beds! Made a meal of bread, salmon, crisps and a banana. - There is only so much of the high life you can take! Oh yeah! I had boiled water. After the sun came out at Wai-O-Tapu it got really hot again. ~~to~~ I was well and truly parched by the time I got here. Tea is the drug of choice on this island! It's all free!

Ps. I can hear the waves lapping on the shore of Lake Rotorua.



### Monday 2nd December

Discovered by tele last night that Rastafarianism is big among Māori and that Bob Marley is a modern icon! It explains the chadlocks of many Māori including Taga Umaga. - That would be cool! A rasta captain of the All Blacks! Also watched a documentary about a film called "Whaler Rider" which is due out in January and is hoped to win Oscars. It's about whaling and is set in a small village near Gisborne (East Coast) There is a huge Māori influence on the film. This will be a must see! I now understand the fascination with the sea and why there are so many reggae songs on the radio. I woke at 6:00 as seems to be the custom now I'm here. I finished the crossword over a cup of tea and then performed my ablution, quick breakfast with the Hubbards mureli and then packed up. I paid my bill to the rather tourist owner who was not at all interested in chatting about Rugby despite the signed photos of All Blacks in the office. I took one last look at the Cove and headed into town. I drove to the Whangaremore Thermal village and walked around for a few minutes but realized it was not going to open for some time so I drove on to the New Zealand Māori Arts + Crafts centre that also has a trip down to the Geysers. This began another day of staggering contrasts. At one point I was on my own in the middle of the bush by a volcanic hole in the ground and later on found myself on the island's most busy road at rush hour!

My first real stop was at the Māori village which overflows a kind of living museum with a geothermal theme park. I spent nearly 2 1/2 hours following the suggested tour and making good progress through my understanding of how ancestor worship coupled with fierce family and tribal loyalty have come to make the Māori people what they are. The displays of weaving and carving were really interesting and I was fascinated to watch the sacred art of paumotu carving at first hand. The Pohutia Geysers was something else! The awesome power of nature has to be seen to be believed at such close hand. Even the smell of sulphur needs to be experienced. It was hot! I was glad I had hydrated well and had my hat and glasses with me. As with everywhere else the bird life was astonishing. Still seen only 2 cats my whole stay!

POLYNESIAN SPA POOLS If it was hard to come away from the Māori village and the Geysers it was nigh impossible to get out of the Spa baths! This was an expensive visit \$14 but well worth it. I was determined to bathe volcanically and did so in a mineral bath that was very warm, a radium bath that was Bonting and



a series of smaller pools that were both cooler and more pleasant. My eczema had been quite bad for some reason but.... I wonder if this is the power over mind over matter. There were striking similarities with the baths in howells. The mountain backdrop, the use of a natural spring, the complete acceptance of each body shape by others using the facilities. - Superb! I was in the water for about an hour and a half with occasional strolls down to the waterside of Lake Rotoma. This was a stirring place yet again. The temperature was very pleasant though a little overcast. I dined against lunch in the postside cafe and hit the road after seeing myself from the boot of the car!

**KAIMAI MAMAKU FP.** I thus began a 3 1/2 hour drive to Auckland through this stirring countryside. I paused once for coffee and a sandwich along the way. This was again amazing. A respite of coffee and a sandwich for \$1.50 - \$4.50. I paused again to photograph the mountains having had to drive for some way to find ~~any~~ somewhere convenient to stop. I didn't leave it too long knowing that I would be back again on Friday night. This was a much more tranquil drive, more like England. It was deeply forested in parts and quite open plain in others. The ~~some~~ dispersed into Motoway and city hinterland as the long drag into Auckland began. I realize even more that I feel more secure in the countryside. ~~Other~~ Cities - or at least unfamiliar ones - scare me! The drive straight through Auckland was hairy and did not afford much time for sightseeing! I must remember to photograph the harbour bridge and the sky tower. Arrived in Takapuna in bright sunlight but took ages to find the motel in which I had booked for the conference. The exterior appearance was nothing to write home about but inside the unit \$70/night (30 sqm) it was spacious comfortable and very clean. New carpet really makes a difference!

**BACK TO WORK** - I was tired but needed to get my head round the conference proceedings and so I made myself a meal from the contents of a short journey to "Foodtown" opposite and then set about doing the preparatory work. This is the most thorough conference I have ever been to and is facilitated by the careful use of technology. I think I am going to learn a lot.



## TUESDAY 2nd DECEMBER

I woke up and realized I had fallen asleep watching Bob Marley on NZ One. Still I had slept for nearly 7 1/2 hours. I left early and found the North Harbour Stadium without too much difficulty. It's a very unimpressive Rugby Ground and conference centre with a good looking cricket pitch opposite. We were there ridiculously early and had a fair amount of sitting around before the first session kicked off at 9:00 am.

SESSION 1 - Tutorial on 'Agent' creation within a VLE called FLE3 - Seems like a good idea but am not persuaded it does anymore than Blackboard or WebCT - ~~the~~ The latter is favoured by 'Australasian', Americans prefer Blackboard.

SESSION 2 - Doctoral papers. This low level self-indulgent stuff really makes Sheila's work look and feel like rocket science. No wonder 'Ray' couldn't mark it. I am getting tired of hearing educationists rabbit on about their own classes as if they are simply research guinea pigs and not people to be taught. I believe that reflexive practice has reached its nadir! We are postulating 'new knowledge' creation on the basis of 20 of our own students who presumably we have made in our own image and likeness. We are bound to agree with our findings.

- Sorry! Had to pause to draw a mindmap - Crystallization and visualization of my thoughts.

SESSION 3 - Tutorial on successful ways of organizing online learning. This was good - Mind you it was outward looking purposeful and intelligent. It drew on a wide body of sources and used audience participation as a tool for knowledge building. Must remember to get the papers and slides by e-mail.

SESSION 4 - Paper session which again showed theory without relevant practice. You can tell who has done some research and is using the conference to publish it and those who are using it as a way of meeting their 'performance indicator targets'. This was how it was put by Brian Ferry 'my new best friend'. Learned the new concept of 'distributed cognition'. Must work on that. Perhaps an undergraduate degree in Psychology should be my next move!

SESSION 5 - Paper session. This was really good. A balance between full on theory and practical applications. (Learned that the OU has developed its own platform 'Lyceum'. Perhaps my next degree should be in Computer Science! That would be a laugh!

SESSION 6 - Guest lecture - This was very dull and uninformative. It shows what happens when your economy collapses and you have to find a new way of learning + teaching - Blamey the 'world leader' or suddenly talking constructivism and collaboration in the classroom. I still think teacher agency matters most! Good teachers will be



effective whatever the method. If you're good at C+T do it! if you're good at facilitating scaffolded learning do both. The motto is both and not either or. Mixed economies - Carmel McNaught only person to talk of subject knowledge. To me this is key. This is the Māori insight. I've called my mindmap the Takapuna Timebomb as I am sitting in my room thinking. Blimey - it is possible to forget to eat! It's ten O'Clock!

#### WEDNESDAY 4<sup>th</sup> DECEMBER

I felt I made the best of today having got the feeling that the conference was going to cramp my ~~3~~ touristie plans. I woke at 5:30 and dozed until 6:00 and then it dawned on me that I could use the time profitably. I got up and did the NZ thing which is to go for a walk. I found my way to Shoal Bay and strolled around the edge watching the birds. It was mild, bright and very pleasant. I then discovered why there are no cats... I was confronted by a large black Labrador. Happily his owner was near by but I have to confess that if I had been a cat I'd have been "outathore". I followed my map and found my way to Takapuna Beach which was packed with wankers and joggers and got it was only 6:45! I paddled all the way along the beach and took some pictures. The circular tour got me back in by about 7:20 giving me enough time for ablutions, breakfast and washing up! My mind was racing with new ideas and development of last night's thinking. Indeed I spent most of the day scaffolding my learning from yesterday by the attendance at one lecture (Allen Collins) which was good on historical technological learning communities, and 18 presentations of papers. One was given by a CPD expert from Taiwan and I chatted to him for some time afterwards. I realize what turns me on is stuff which is intellectual, challenging of my own knowledge base or attempts to say something new. I get bored hearing about someone's research of their own back yard. Some of it is really light weight and gives me confidence that I could do a paper. I must put something into BELMAS... or maybe Hong Kong!

I became intrigued today by the notion of English as a meta-language. You have to hand it to these people. The majority do not have English as their first language but ~~the~~ are presenting the findings of their research in English. It is interesting that the paucity of speakers are usually more accurate than the Europeans. I got really irritated by an Aussie woman Assistant Professor who was chairing one session and really thought she should be a key note speaker. She was so patronising and condescending to the presenters. Sort of person that you have to take on intellectually... So I did! The most impressive speaker was Rudy Lecheche a French Prof. with loads of ideas about knowledge coaction. I must read his papers from the CD ROM. Decided I need to write down examples of NZ humor. - I really like it.



PS Also noted the perpetual smell of honey in the air. It might just be a contrast with the sulphur from Rotorua but it is more likely to be the abundance of pollen. This is another NZ first - hayfever in December! It's interesting, lots of people are suffering with it.

### AUCKLAND

I decided to go into Auckland, and was glad I did. The harbour was full of yachts, circling round the America's Cup boats. The 'city of sails' certainly lived up to its reputation. I was also keen to see Sky Tower and Sky City and made my way in tentatively over the spectacular harbour bridge that links the city to the North Shore on which is built Takapuna and Devonport. Found my way down to the docks and watched polyesian types fishing amid the ostentatious wealth of those who sponsor Team New Zealand and the other Luis Vuitton competitors. The colours were striking set against the brilliant whiteness of the yachts and superyachts. I made my way into the city which is no bigger than Geydon and was awed by the tower, the tallest manmade structure in the Southern Hemisphere. People abseil down it! Mind you they also climb up the harbour bridge. Bought some postcards as souvenirs and collected my pair of Sorns from the All Blacks shop. I was tempted to buy a shirt but settled on a Tie! Had a good chat with the Sails assistant about Rugby and got straight on my mind the difference between the NPC and the Super 12s. I must make a point of watching out on Sky for the Auckland Blues when they play the North Harbour Stadium. What's interesting about Auckland is that it is NZ's biggest city. That makes Wellington a capital like Canberra or Washington D.C. - They can concentrate on being capitals, whilst New York, Sydney and Auckland can do tourism and gitz.

Nice to get an e-mail from ~~Star~~ Starprincess1. Amazingly had a call from Mary Rumsey. I'll deal with that next week! Getting tired now and feel the need for sleep. It's going to be a long day tomorrow, but glad that I've seen a bit of Takapuna and Auckland.

PS. The other factor in the absence of cats is the huge Seagulls that are everywhere. I saw one chasing a cat away from some food scraps! Long live the Seagull!



### Thursday 5<sup>th</sup> December

This was a day for deeping the now becoming families. I heard prof Bob Lewis from Lancaster give his talk which was hampered by a failure to simply control FS. I wish people wouldnt use powerpoint unless they know how. It is so embarrassing and such a waste of time. I then attended another 2 or 30 minor presentations that ranged between the poor and the brilliant. There seem to be 3 types of papers here: Ones that report on software development work that is underway and which will support learning applications; Others that ask intelligent questions about what the future might look like as new knowledge is constructed; Others just seem to give a description of a course or session that has been taught and then extrapolate out to suggest that all learning is like this. I really have my doubts. There is a huge multi-language challenge here. Programmers working in C++, Visual Basic, HTML, JAVA etc translating into Taiwanese and then into Meta English. It's difficult to get a sense of what some people are saying and others have a clarity which is mind-blowing. What has surprised me is that I have seen lots of evidence of others sharing my concern for the primacy of knowledge. The knowledge building environment is critically important. It enables the transcendental and timeless truths of global intellectual heritage to become a foundation for new and emergent learning situated in the context of a learner's own space. My model of Māori meeting house stands! It dawned on me that the jaw-porter bed metaphor of my Master's Thesis can be nicely adapted here to take account of the few corners of a Māori storage house. [It was interesting that Professor Tax Wei Chen quoted Confucius this morning: a veritable ancestor if ever there was one - 6/12/02] The conference dinner was very enjoyable though came to an abrupt end with the departure of the buses. I sat with Paul a Mexican Ph.D. student at Osaka University in Japan and Michael Verhaadt from EIT in Napier N.Z. The conversation was laid back and easy and the food magnificent. Got home (well Taccapina!) and devoted to park. Actually I was invited by 11:30 and the hotel had restocked my supply of milk. They really know how to look after visitors here. Kimshuk did a great job of closing the ceremony.

### Friday 6<sup>th</sup> December

Woke at 6:22 which means 7 hours of good quality sleep probably enabled by the fact that I had put the stuff away last night and was not, therefore, in my laptop. The last day of the conference, my reason for being here. Quite sad really. I am, however, more determined than ever to use the job to expand my travel horizons. Tax Wei Chen's presentation was really interesting. I must remember to pass on to Mike Wood the information on Kaulitix. He would make great use of the technology. It's kind of like 'Millionaire' comes to school! but the potential for participation is amazing. It makes me think that my vision of the classroom of the future was not a distant reality. Had a really good chat with Parzahn from the University of Arizona. He is potentially my new new best friend! A Transatlantic project would be good teamed onto an antipodean project with John O'Neill. Blimey that all seems a long time ago! I think I may have full meta-cognitive overload. Am becoming increasingly conscious of more fields of study: meta-cognitive



Artificial intelligence and 'Agent' were among a few. There is clearly a whole body of literature to be examined in relation to patterns of adoption by ~~the users~~ users.

Innovators, adopters, early adopters, late adopters, sceptics, resisters. Each one could be represented by family members we have known and loved! Of course some people operate in a number of parallel camps at once!

I also visited the 'prayer' room today. A hospitality suite in a Rugby club is the most strange setting! Still with such a spread of cultures and religions it's nice to see. It was interesting that word 'North' was posted on the wall in order to enable all ones to find the direction for their prayers. The last sessions were quite repetitive of ideas from earlier versions and papers.

But I talked with David Kluge from Japan about their work and also examined a number of the poster session providers. Had a good chat with someone from California State University. I must admit I have found the Brits most stand-offish. I made a good contact with Paul Renta, a Mexican studying in Japan and learning to programme HTML (Kanzi) characters. I was also impressed by his tablet PC with wireless connection which enabled me to use the net! He is working on the creation of digital libraries in order to take information back to native American peoples.

I attended the final session at which the people from Hong Kong sent out the invitation to participate in ICCE 2003. -- HK does not appear to be as attractive a proposition as NZ as there is too much city and too many people. Kirsten did a great job of sorting out this conference and it will be a hard one to follow. It reinforces my commitment to getting papers into conferences to continue exploring the world.

**TOURIST AGAIN - 16:50 6/12/02** I left North Harbour stadium and hit SH1.

I had not travelled more than 10ks when the traffic kicked in! Well it was Friday night and Auckland is the biggest city in NZ. I should have known really. What a wally! I phoned him to say I was stuck and she was not surprised. It is evidently notorious. It took an hour and a half to clear the city limits and ended with pleasure that the route into the airport - for Sunday - required no such queuing cross-town journey. SH 20 leaves SH1 at Manukau which is a large suburb of Auckland. I followed the road down to Bombay (The subject of much NZ humor I believe) and then turned on to SH2 just after Auckland. This rolled into the Haurangi plains which is a wide basin, quite high up between the Firth of Thames and the beginning of the central mountain range. This took me to Paeroa - the antique capital of NZ where I stopped to phone him and get more directions. I realized that she had actually moved from Waihi Beach and is actually now living in Tauranga. The road from Paeroa went through this unbelievably spectacular gorge called Karangahake which has a river at the bottom and a tiny village called Waihi half way along. This place does not appear on any maps I have with me.

8763ks



I let the Ngāi Tahu adventure it so that it remains open space. This place is, after all, off the beaten track. It was difficult at Karangahake so I determined to photo it on the way back. The road ~~from~~<sup>to</sup> Waihi was fast and windy and it was getting dark. Lynn had told me to watch out for Bethlehem (!) which would be a good marker - it took an hour to reach it. The star on the chemist's is another fine example of NZ humor. Lynn's directions from here on were excellent and I arrived at about 8:45. She lives in a Richmond home for people with learning disabilities and only has a one-roomed flat so after a delicious meal we drove to her daughter's home in Papamoa on the other side of Tauranga. It was good to catch up on her news and she was interested to hear about Sheila, Mary, Ellen, Anna and Sarah. I hope I didn't bore her talking about them! The next morning we set off quite early to drive the Coromandel Peninsula.

### SATURDAY 7<sup>th</sup> DECEMBER

mt. Maunganui Lynn was determined to show me round but was also keen to see some places even she had not visited. That was cool by me. She wanted to show me the 'Mount' as they call it which is this stunning volcanic lump at the entrance to Tauranga harbour. Sadly there was a 'timman' race in progress so the road was blocked. Nonetheless we got out and strolled onto the beach - white sand, clear blue water, view of the harbour, palm trees - but it began to pour with rain. The day had begun in bright blue sunshine and I was not dressed for an English Autumn. Lynn wanted to go back to the flat to pick up her coat so we did. She changed but it was getting warm again so I just retrieved my bag and we set off towards Coromandel.

WAIHI BEACH - Having paused at Kaitiaki for zovirax and to photograph the amazing murals we pulled up again at Waihi Beach which is 10Ks of white sand, surfers and sunshine. - It was really hot and I watched a junior surfing competition for some time. These kids really know how to enjoy themselves. It was a whole family event and spectacular from an outsider's point of view. The road went back through Paeroa which incidentally has 'pre-loved' furniture and tne-a-brac. Something of ce on my guide was pleased to tell me.

THAMES - I don't think Lynn thought my gag about being 'heavily home' was very funny! Thames is a kind of portal town which gives access to the Coromandel Peninsula and is a pretty place with typical NZ 'baches' dotted along the foot of the hills with front gardens about a mile long that go down to the beach. This beach is the Firm of Thames and looks across to Auckland on a clear day, which it wasn't! The scenery to the ~~west~~<sup>East</sup> was spectacular and as the road left Thames it became even more stunning, spectacular and rugged. The road felt about 3" wide - there is only 1 and it hugs the shoreline - It doesn't have much choice because after about 3Ks the



beech evaporates and the cliffs rise sheer from the roadside. It was absolutely awe-inspiring. It remained as such for about 60K until the road swung round to the east and began to climb. It was deserted and unspoilt and the view from the top was indescribable. Coromandel town sits at the head of Coromandel Bay which is a natural harbour with a massive Oyster Farm visible on the mud flats at low tide. From the mountain above every conceivable bit of NZ geography was visible. I was amused by some cattle hugging the hilltops - God knows how they got there. The clouds and mist added to the atmospheric weather ~~constantly~~ setting. It was just beautiful.

**COROMANDEL** The town itself was quaint and engaging with all the necessary facilities! A cheese sandwich and the last of the Warehouse Cakes did for lunch as Lynn had booked us onto Barry Brickell's light railway. Seagulls, it would appear, have a ubiquitous ability to sniff out food and they settled on the bonnet of the car while we ate. The tourist information place was a fascinating old world building with loads of stuff and a display of stuffed NZ animals including a possum. They gave us a good map of the area which enabled an easy find of the single track railway line. This used to be an old mine working in the Sorrowful for gold and the railway was used to carry materials to the open cast quarries half way up the mountain. It is now a cross between a horticultural theme park, a very rich person's folly and the most exotic art gallery imaginable! The mine workings are now used by potters - Barry Brickell being one - who cut the clay from the hillside and work it direct. There was an old station with a nicely old train and an absolutely hilarious driver / guide who regaled the whole train with his outstanding and stereotypically ironic kiwi humour. Right at the top was a stunning look out across the Haurangi Gulf, site of the America's Cup challenge which our mom described as the 'New Zealand Cup!' - "Well I reckon it should be called that now!" 3 strikes and we got it! - I actually found it almost impossible to look at the scenery because I was crying with laughter! When I composed myself I was able to watch his description of how Barry Brickell is consolidating new growth in the 'rain forest' by re-planting kauri and Rimu trees. There are blends with the pohutukawas, pongas (the famous silver fern), tree ferns and palm trees. It was just fantastic. Among the trees and bush the potters had 'installed' hundreds of works of art including whole walls of bottles! It was an amazing place. It was hard to come away because around each corner was a site more stunning than the last - like an old Auckland tram converted into living accommodation. Overhead there were many birds and I tried to spot a Tui which was constantly calling.



Back at the car I was surrounded by Aucklanders who were fascinated to hear the account and find out the best things to do in Leeds! It was really quite amusing. Although it was getting quite late I got the impression hyn wanted to head for home in order that I was on terra firma for the morning. I agreed to her suggestion that we go for a short (ish!) guided walk around Tees Bay before hitting the road back down the other side of the peninsula. This turned out to be a good suggestion because the walk from Long Bay toured through proper 'bush' where the Kauri are preserved. One specimen was 7m thick and would not fit in my new finder! The tour ended in Tees Bay at a wild campsite on the beach - fully serviced! It was just breathtaking.

**Whitianga** Sadly the weather closed in and spoiled what must have been stunning scenery as the road went over the hills. In breaks in the cloud it was possible to see scenery similar to the ring of Kerry. The driving was challenging and tiring but I was keen by now to get back to relative civilization in order to meet the final day. In a break in the weather we stopped for guernsey and chips - This is amazing Kiwi tradition - \$7.60 for two full meals. It was really good. The day was closing in and the 2 1/2 hours back to Tauranga will be memorable for the intense concentration in showing weather on 'interesting' roads. Beer was in order back at Laurie's house but it was not long before I was nodding off.

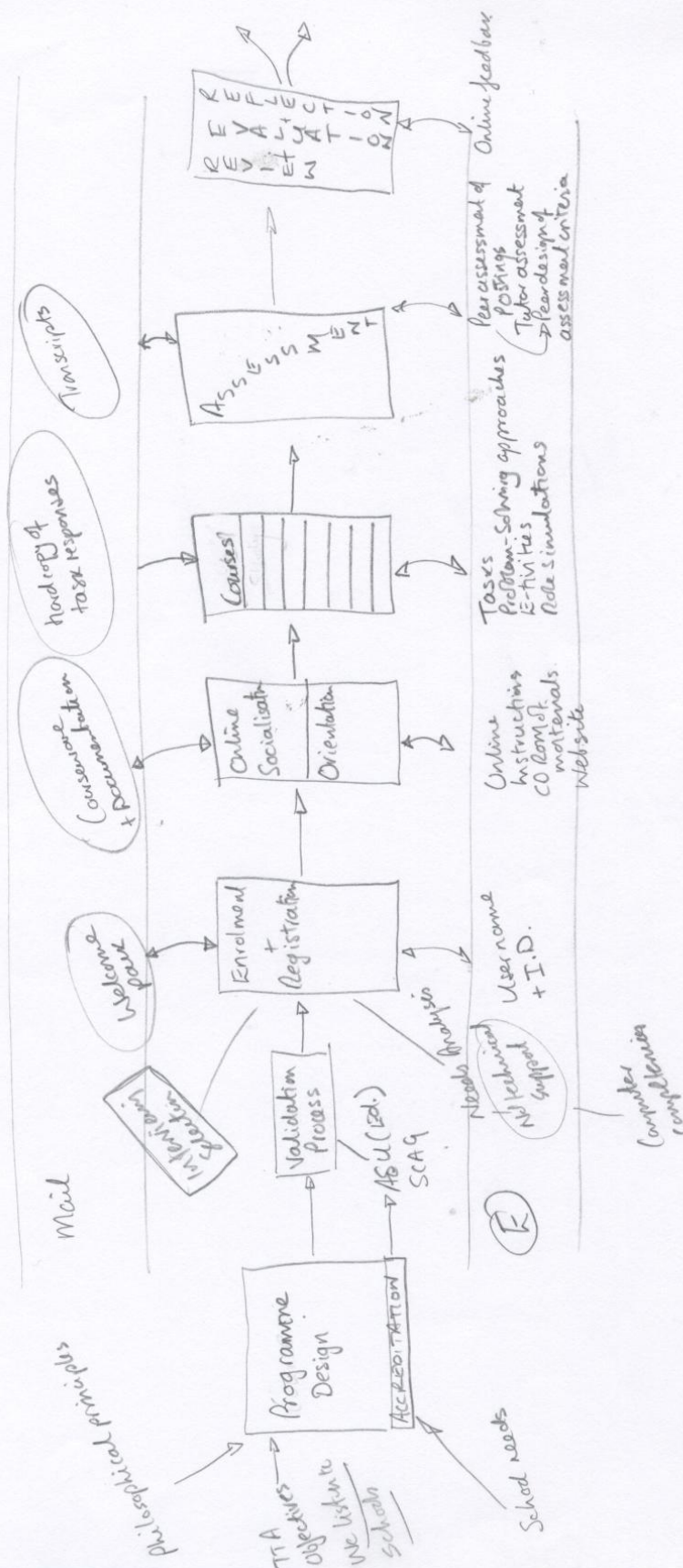
**SUNDAY DECEMBER 8<sup>th</sup>**

**Mt. MAUNGANUI** - As the day turned out well hyn suggested an early morning walk round the 'Mount'. I'm glad I agreed for 2 reasons. (1) It was yet another breathtaking walk! (2) I have been sitting in this airport since about 20'clock and if I had got here any earlier I would be 'stir crazy' by now! The walk goes right round the base of the mountain which is a large lump as described. The path which is very popular straddles the shoreline and is made entirely of compressed shells. As it is a circular tour you get a view first of the Pacific with surfers riding the waves, then the Coromandel Peninsula across the Otua Harbour Gulf and then the harbour with the luxury super yachts. In the harbour people fished, scuba dived and had a good time. Brilliant!

**AUCKLAND AIRPORT** → Sadly I'm here now. I dropped hyn back at the residential home and took her dad's address. I reckon she'll come to England to walk from Land's End to John O'Groats - Impressive person but restless. Apart from one hairy moment crossing from SH2 to SH1 it was a peaceful easy drive with intermittent rain and bright sunshine. Sitting here reflecting on the day and all that has happened I realize that I am glad to be going home. I had a real moment of sadness for Sarah on the way back across the Hauraki Plain which led me into homesickness for Sheila and May, Ellen and Anna. Naturally I am also sorry to be leaving this beautiful country which has made me so welcome. These notes are being written looking across to the volcanoes on the Northland above Auckland. The sun is setting and the sky is a pale yellow. It will be a powerful fond memory.

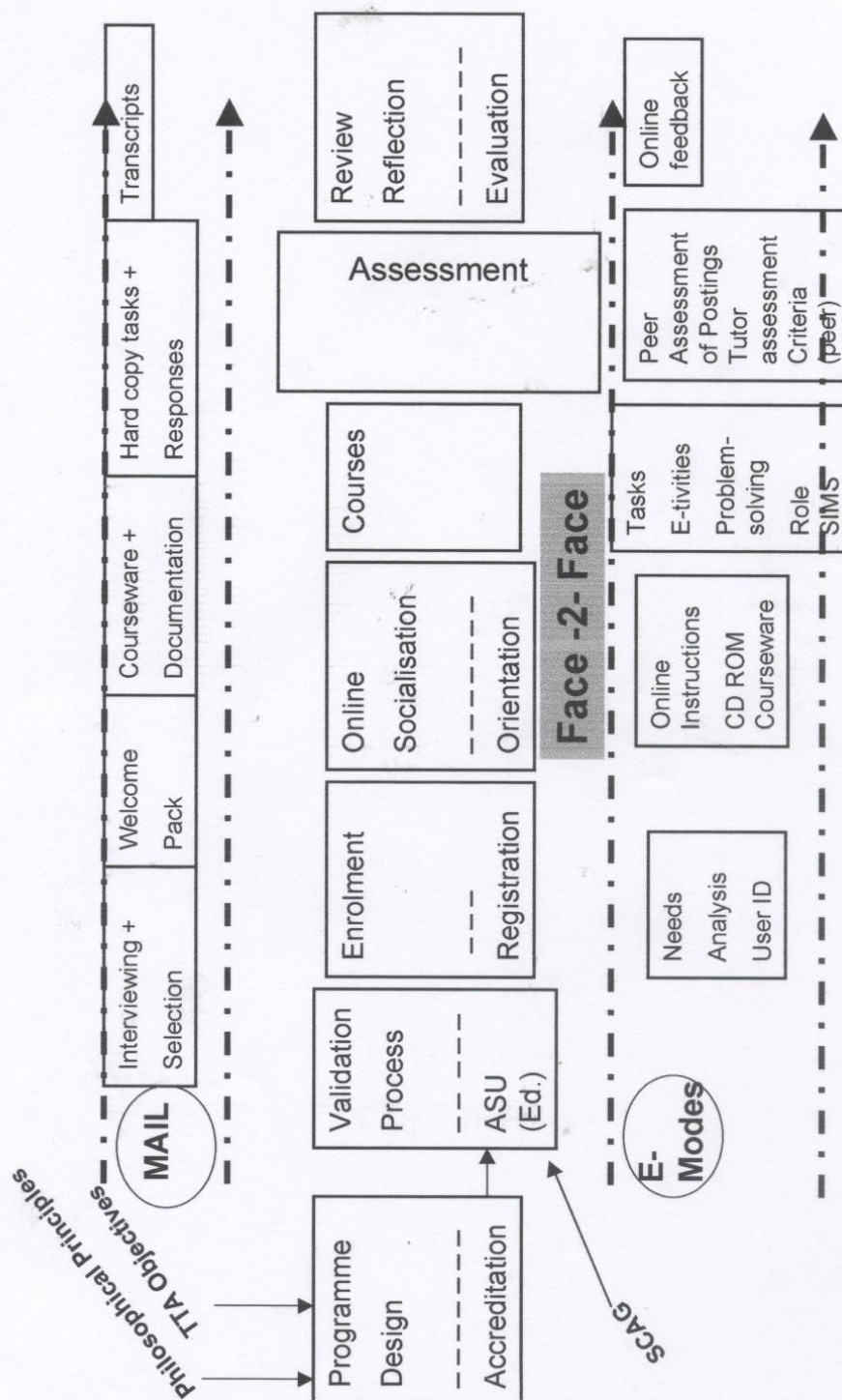
# A Model for E-Learning of the Development Course.

Mixed economy  
Blended learning  
VA+K





# A Model for Distance Education in Professional Development Courses with Computer Assisted Learning (CAL)



## Key Ideas / Findings

- ① Net solution - Cabling to connectivity
  - ↳ All inclusive - listen to schools and work with them.
  - ↳ Stand alone business
- ② Problem-based teaching
  - Solve ~~not~~ problems as a networked learning group.
- ③ Learning technologies
  - Not just ICT.
- ④ Web-based groups (small, changeable, fluid)
  - WebCT allows chat.
- ⑤ Mixed-economy - <sup>Principles</sup> Last, Paper, Portals, Peers, Personal tutor.
- ⑥ One day show
  - Hard
  - Soft
  - Techie
  - T+L.
- ⑦ Semester for course development time
- ⑧ 'I'm teaching my distance-based class - Do not disturb'

## ***Appendix 2 - IM1 - 1989 (A@t<sub>1</sub>)***

### **Context**

Unlike the other critical incidents that might be described as significant in my life and spanned periods of several days or even weeks, this first sub-case study can be pinpointed to a specific moment in time – the afternoon of **Monday 19th December 1988**. It was during the selection process for the role as Head of RE at a **Roman Catholic Comprehensive School in Maidstone, Kent** – a post to which I was appointed that day and in which I remained for the following **nine years**. It is significant for several reasons, not least that it meant uprooting my family from our home in Luton, Bedfordshire. Professionally, it was significant and relevant for this thesis because of one of the questions I was asked.

For this particular incident, I seek to make the process and proceedings clear by the use of the questioning words: Who? What? Why? Where? When? and How? where relevant and appropriate. It is evident that such a detailed approach to analysis might interfere with the narrative and, where this might be the case, there may be some amendment to the process.

Who?

Present at the time of this critical incident were only myself and the **head teacher** of the school, (in whose study this part of the selection process took place). That **he** became, to a degree, an advocate and supporter of me and thus, by implication this project, is attributable to a single question. He asked, “Can you use a computer?”

I answered emphatically, “Yes.”

What?

Some historical data are important in order to further deepen an understanding of the context in which this simple word was significant. In 1989, the internet had not been invented<sup>72</sup>. MS-Windows, as an operating system was at version 3.0<sup>73</sup> and was by no means ubiquitous. The Apple Macintosh II, the machine that signalled the personal computing revolution, was only five years into its life cycle and the Berlin Wall had been penetrated only six weeks before<sup>74</sup>. Phrases like “dot.com”, “blogging”, “downloading”, and “silver-surfing” were ‘of the future’.

When?

The reason why this was chronologically significant was because it was uttered at a moment in time co-terminous with that which Friedman describes as the commencement of ‘globalization 2.0’ (2006, pp. 51f). By this he means the explosion of computer hardware that enabled users to undertake tasks that had been confined previously to typewriters, other mechanical devices and administrative staff. This was ‘true’<sup>75</sup> of the school which I was leaving. One of the factors that impelled me to accept the job that was offered was the abundance of technology that was visible on the ‘tour’ of the school that took place in the morning before the interview. I realized that the school was already on ‘the bandwagon’.

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<sup>72</sup> Most commentators (Naughton, 2000; Friedman, 2006; even Wikipedia – see.

[http://en.wikipedia.org/wiki/World\\_Wide\\_Web](http://en.wikipedia.org/wiki/World_Wide_Web)) accept that Tim Berners-Lee developed hypertext markup language (html- the programming language of the internet) during 1989, first communicated using it in 1990 and released the code around 1992.

<sup>73</sup> This is significant since it was the first Graphical User Interface (GUI) that Microsoft had deployed on computers, moving operating systems away from menu driven data operating systems (DOS). It was the use of menus that had been a breakthrough for Alan Turing in the inception of his own machine (see Hodges, 1994)

<sup>74</sup> Friedman describes this as ‘flattener #1’, in other words, one of the causes of a flat world understanding of globalisation(2006, p. 51)

<sup>75</sup> The word ‘true’ is used here deliberately to signify the fact of working life as it was in 1989.



It is also ‘true’ (that is, a statement supported by evidence) that I had used a computer. In fact, I had attended a d-i-y training course run by the **Head of Computer Studies** in the school in Luton, during which I had learned the rudimentary principles of word-processing and data storage and retrieval. Prior to that, my only experience with computers was playing video games as a student from a tape-driven machine that was owned by a friend. It was certainly not a ‘warranted set of true beliefs’ (see e.g. Moser, 1986 and explored in section 2.1) that I could use a computer. However, what I had witnessed was my **head of department’s** passion for the new technology and his enthusiastic adoption of the word processor as a way of updating our ‘cyclostyled’ resources. In a sense, I had been to the top of the mountain, looked over and seen the future.

Where?

The school to which I was applying was located, and remains, **in a town which operates educational apartheid at the age of 11+**. As the only Roman Catholic secondary school, it provided (with its feeder primaries) education throughout 4-18 for Roman Catholic families, and was very successful in persuading the parents of children in the upper ability quartile (i.e. the top 25% according to intelligent quotients (i.q.-style testing) to not opt into the grammar school system. One of the ways in which it did this was to keep the curriculum new, fresh and relevant. **The head** had been convinced of the utility of information technology along with a number of ‘**early adopters**’<sup>76</sup> among the staff. The school possessed what I now know to be a ‘thin wire’ network and had provided all key personnel with PCs. There was a thriving department of Computer Studies.

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<sup>76</sup> This term is used extensively in the literature to describe those who ‘are likely to tolerate technology that does not always work and be willing to take risks – they believe that the benefits will outweigh the difficulties’ (Salmon, 2000 p. 71).

Why?

The reason why I answered affirmatively is clearly open to interpretation<sup>77</sup>, but the fact that I did so provoked an immediate chain of events. First, I set about learning how to use a computer properly. In keeping with my own learning preference, I undertook this by asking for a machine from the school, arguing that I needed it to re-write the schemes of work for years one to three (now Years 7 to 9), and then playing with what it did. As a symbol of how far technology has developed, and how fast, it is worth noting that that machine was supplied with no hard disk drive, the programs were installed on one floppy disk drive and the outputs had to be stored on another. The program disk I was given contained five pieces of software including MS-Word (!) in DOS format. In practical terms, I had to learn very quickly how to install, load, uninstall and escape from software. I had to learn how to set up the PC so that it could be moved to places convenient to where I needed to work, how to connect it to a printer and install printer drivers etc, and above all, how to type!

These were the days before schools had ICT technicians, thus, I also had to learn to solve my own problems – not that there were many, since most of the software was being developed, tried and tested by developers keen to get it right from the beginning<sup>78</sup> and not just rush it to market.

Of particular help was the Head of Computer Studies. Intriguingly, he was the former Head of PE who had decided to step down from that role since his increasing maturity, he felt, would disable him from maintaining that role. The school had given him the new role for which; by his own admission, his only qualification was a home computer, owned for gaming purposes. That we shared some deep learning moments together is undocumented, but there was a dynamic,

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<sup>77</sup> Since this is controversial, and since also it was pivotal and the source of much discussion over time with the supervisory team, I have chosen to spend some time reflecting on it (see section 4.1.1)

<sup>78</sup> The history of computing shows that, at that time, most software developers were working within the mindset of what is known now as the iterative and exploratory ‘open source movement’ (Friedman, 2006)



mutually supportive relationship between us from which I learned much. For example, I learned the basic workings of a computer such as the difference between random access memory (RAM) read only memory (ROM); the core information functions of computing: input, processing, display and output; the value of a logical and sequential filing system (using eight characters only since this was the standard of the time); the ability to dismantle a PC and install hardware components like disk drives and network cards; and the need to back up mission critical data frequently. Given the epistemological schema that was set out in section 2.1, and which underpins this study, it is reasonable to assert that these bits, bytes, data and information can be regarded now as a part of my ‘foundational knowledge’.

It was at this time I also learned the value of involving pupils in the problem-solving aspects of ICT. Looking back, I recall watching over their shoulders while they performed technological “miracles” on screen, trying to follow their keystrokes on the keyboard and then going back to the office to see if I could replicate them on my own computer, with no-one looking! I have chosen to use the term ‘miracle’ deliberately as a ‘pop-up’ in the text, to signify the profundity of the influence such events were having on my professional and personal self. It is used, in common parlance, of circumstances that are regarded as out of the ordinary though it has been adapted from theological discourse where it is used to signify a “Marvellous event due to some supernatural agency; remarkable occurrence; remarkable specimen...” (Concise Oxford Dictionary, date p. ref.)) Shaw takes the definition further, providing support for my adoption of the term in relation to this thesis:

“A miracle is an event which creates faith. Frauds deceive. An event which creates faith does not deceive; therefore it is not a fraud, but a miracle.” (Shaw, GB date St. Joan, cited in Pepper, 1989)

These experiences began to create in me the faith that technology could do more than simply solve mathematical problems for a novice head of department though, at the time, this felt nothing less than revelatory. It is interesting to compare this ‘play’ on ‘miracle’ with that of Naughton (2000) describing his first encounter with the internet.

“The man sits there patiently and waits, and in a few minutes the image flickers briefly and is indeed rebuilt before his eyes. Nothing much has changed, except that the camera has moved slightly. It has begun its slow pan rightwards, towards the Bay Bridge. And as the picture builds the solitary man smiles quietly, for to him this is a kind of miracle.” (Naughton, 2000 p. 5)

Naughton reports this event as taking place in 1997 (p. 1); it was nearly a decade before that I awoke to the realization that technology could be an enabler, an equaliser of opportunities and even a liberator, when judiciously applied in classroom settings.

### **Influence on learners**

Earlier, I mentioned the early adoptive (Salmon 2000, p. 70) tendencies of the head. At that time he was also teaching RE within the department, along with the outgoing head of department whose promotion to Deputy Head had caused the vacancy that I was filling. Between them, they had begun the not inconsiderable task of migrating all their existing GCSE notes from cyclostyled masters into text format – the process of digitization identified by Friedman (2006),

“...Windows enabled PCs and Apples made it possible for individuals to author their own content right from their desktop in digital form” (p. 56).

Therefore, I inherited a (what would now be called Key Stage 4) curriculum that was word-processed. This was a model that I was keen to extend to Key Stage 3 and up into the VIth Form where we had burgeoning numbers of A Level candidates.

### **Influence on professional context**

It is worth noting that some of the materials that had been created before I arrived at the school are still used extensively by candidates preparing for GCSE examinations in Religious Studies, and not just within that school. As will be seen, some of the learning gains I made during the period 1988 – 1989, fed forward into the establishment of RE-Net, now one of the TDA's most successful, supported, subject resource networks. RE-Net still makes available some of that original content, though it has been through two revisions in style and formatting (see e.g. <http://www.re-net.ac.uk/ViewArticle2.aspx?ContentId=11117>). What this phenomenon points to additionally is one of the perceived benefits of the digitizing revolution wrought by (information) technology, namely the ability to re-purpose and refresh 'content'.

My enthusiastic adoption of the technologized working practices of the school, contributed to the enhanced impression of the department and thus of my own professional standing with colleagues and the wider educational community.

### **Influence on myself**

The recognition that I could refresh and re-publish content infinitely was a significant influence on myself arising from this critical incident. As a head of department, I was convinced that there would be enormous benefits to be accrued from the digitization of our materials, so with every new release of technology, we were able to make the changes seamlessly whilst colleagues struggled to meet the demands of constant change.

This one event triggered in me an almost childish 'glee' and willingness to play and experiment (Winnicott, 1999; West, 2004) with the vast array of tools, set out before me. In the succeeding years, I developed, for example, a database-driven reporting tool (using a database program

called *Dataease*) to generate electronic end of year reports, a system for recording the end of module marks for each pupil in the department (using a spreadsheet tool called *Logistix*, before migrating – re-purposing – it into *Lotus 1-2-3* format and subsequently into *MS-Excel* format) and I became very proficient at using *MS word* as a tool for desktop publishing of booklets, worksheets, prayer sheets for the daily collective act of worship and booklets for use in the many religious activities that were additional responsibilities for someone holding the post of Head of RE in a Catholic school. In effect, I had come to appreciate the value of IT<sup>79</sup> in reducing the volume of routine and repetitive tasks. Kennewell et al. note this phenomenon in relation to pupils:

“The speed and capacity of digital technology have allowed the development of software tools of great utility. Word processors, spreadsheets, databases and graph plotters are examples of generic tools that may be used to good effect in a range of subject areas. The power of such tools lies in their ability to perform repetitive operations swiftly and accurately.” (2003, p.11)

Salmon notes the same phenomenon within the university sector:

“Academics are conscious of the opportunity costs (such as time taken away from research or working with more familiar teaching systems). Administrators look for gains to the institution.” (Salmon, 2000 pp. 19-20)

One of the repetitive operations I was required to perform *ex officio* was the submission of examination results for the subject in rank order for each year group. As someone with what has been identified as ‘Mathophobia’ (Papert, 1993 p. 38), I can still recollect (Gallwey and Green, 1986; Natanson, 1970) the feeling of ‘dread’ at having to calculate the percentages and then conduct the ordering process. It was the solving of this particular problem using *Logistix*, in

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<sup>79</sup> Please note the deliberate exclusion of the letter C from this acronym. It became fashionable to add a C for communication during the 1990s when there was increasing recognition of the utility of computers to facilitate person-to-person interactions.

collaboration, with the **Head of Computer Studies**, which was a significant pointer to the “magic” that IT could be for me, and is. This occurred on **20th June 1989** – I ‘know’ this because it was at the very moment that I selected <sort> from the menu on the taskbar at the bottom of the screen that the school’s secretary arrived in my office bearing news that my wife had gone into labour with our second child.

### ***Appendix 3 - IM2 - 1996-1998***

In January 1996 I completed my Masters Degree in Religion and Education at St. Mary's College, Twickenham. My dissertation supervisor, Lynne Scholefield had become a close professional ally and advocate. When the teacher second in charge of the department was appointed to a head of department role at another school, I approached Lynne, asking if she had any appropriately qualified PGCE students looking for a job. Robert Bowie (Bob) joined the department in September 1997.

By this time I had built a network of computers in my own teaching room having assembled the money to do so from various ICT grants that were available at that time, careful management of our existing BSA&E and extensive bid-writing into the school's senior management team. As a Catholic school, RE was a compulsory subject at GCSE level and over the years we had amassed a sizeable quantity of digital materials which were used to support learning and teaching across years 10 and 11. For the more able, the provision of detailed, well-written and word-processed ink-duplicated 'sheets' was undoubtedly a contributory factor to our formidable results. The groan from the less able pupils when the 'sheets' appeared, was a constant reminder to me as head of department that the need ( $N_I$ ) for a variety of methodologies was imperative and, in a Catholic school, morally essential.

Minor shifts in year 10 male pupils' attitudes to RE had been achieved by the installation of a confessional piece of software on my nascent network. 'Conflict in Jerusalem' (Lion multimedia, 1996) was a program delivered on four floppy disks which applied the principles of levelling from computer-gaming to the last week of Jesus' life as told by the evangelist Luke. To complete the 'game', pupils had to navigate their way around Jerusalem by asking questions of certain key personnel. In order to ask the right questions, they had to learn what the

contribution of each group (e.g. Romans, Scribes, Pharisees, Zealots) was to the 'zeitgeist' of first century Palestine. Disaffected and otherwise alienated boys, soon bounced up to RE lessons and, moreover, would come back to the classroom at lunchtime to continue with their gaming. I observed this phenomenon, though regrettably now, not in an organized or structured manner.

It was in a department meeting some time in October 1997, that I posed the question of the team, how could we make better use of the network to deliver all this pre-existing material in a more imaginative way. Bob said, "I think it's called html." By this, he meant that there was an emerging technology that would convert plain text into 'hypertext' and thus enable us to deliver 'content' across the network dynamically. It also meant we could make it colourful and add images to it. Naughton (2000 p.215) records that Tim Berners-Lee was working on the development of html code – the programming language of the internet - between 1989 and 1991. Within six years, therefore, Bob was pointing us to a potential pedagogical agent. He was aware of this through his brother who worked in the media.

I had already seen the power of the internet as a learning tool by gaining access to the already proliferating websites associated with religion(s). There was a joke circulating at the time, that "there are more Bill Gates hate websites, than ones about religion." This masks an important point. Religion is a powerful force in human affairs. Religions are always proselytizing since they believe they contain the path to truth and salvation. Religions have always, therefore, used any available medium to communicate their message. It is not surprising, therefore, that the internet was quickly adopted as a 20<sup>th</sup> Century means of spreading the 'message'. Around that time, from inside my classroom, simple searches using tools like *Alta Vista*, *Web Crawler*, *Lycos*, and *Ask Jeeves*, produced 'bucketfuls' of useful information. I realized very quickly that I now had access to the greatest library in the world and I could get to it from my armchair.

Books would no longer clutter up my house and I would never have to pay overdue lending fines again.

In one Eureka moment I came across the full text version of John Stuart Mill's *On Liberty*, a text we struggled to get each year for teaching A Level Philosophy and Ethics but which I retain now in digital form, for whenever I might need it.

“What?” I wondered, “could we do, if we converted our ‘sheets’ into this dynamic html ‘thing’.” I invested £25 of the department's books allowance in *HTML for Dummies*. It was Bob who began to teach himself hard-coding in html first. My contribution was to gather up all the material from all the different storage media and to prune and edit down all those files so that we ended up with a coherent set of resources and no repetition. In a relatively short space of time we produced a website, which we called RE-Net. This developed a life of its own and soon became the subject of a lot of interest from other Catholic schools wishing to find ways to stimulate the imagination and engagement of the pupils in their care. Expectations among our pupils also started to shift. They wanted more and more material online and in rich media formats.

Retrospectively, and with the benefit of hindsight<sup>80</sup>, the departmentally organized cruise around the Eastern Mediterranean, which occurred in the Winter of 1997, was also contributory to the establishment of RE-Net. One of our colleagues returned with photographs of ancient sites of religious, political or historical significance. Once scanned – another technology it became

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<sup>80</sup> Darwin's theory of evolution is a necessarily *a posteriori* research project since the objects of the research, were creatures he encountered after they were changed by their habitats. With the benefit of hindsight and the biological footprints left in the sands of time, he was able to induct the theory of the natural selection of species. Here, I am noting that events occurring as part of everyday experience and not, apparently significant at the time, have since come to acquire a significance for this project which could not have been predicted.



important to master – these photographs became important decoration for the site, giving our pages authenticity and colour.

Recognising that we had touched on something powerful, it then became apparent that I would need to learn to ‘program’ in hard code as well as Bob, since there was not time to both write course and support materials and convert them for distribution across the network. Using the same book that I’d bought for Bob, developing my own shorthand strategies for avoiding repetitive tasks and continually talking to other emergent developers – e.g. the son of some family friends who was attracting a lot of interest by developing and maintaining a website for enthusiasts of *Serie A* Italian football – I became quite proficient at writing web pages.

This proved useful when, as inevitably they do, examination specifications change - a concrete example of  $N_1$ . Controlling the website meant that I could make amendments very quickly and not have to write lots of new content. It proved to be even more useful when, in April 1998, I moved to Canterbury Christ Church College (now Canterbury Christ Church University). It was at that time that significant monies were being poured into ICT strategies in teacher training institutions and schools with the express intention of ‘upskilling’ the workforce. On appointment, the ICT lead in the college, Phil Poole, was keen to know what I could do to add value to the ICT experience of the RE students. At one level, the self-directed experiences I had had were immediately useful; but they also presented an immediate problem. RE-Net was a powerful resource for teachers in Catholic schools but it had no meaningful content for anyone working in a maintained school with a curriculum offer which included non-Christian faiths. Moreover, it did not contain any material for the support of professional development of teachers in training. Therefore I realized very quickly the need for even more professional learning on my part about other religions, other cultural contexts and other modes of developing online

content - a concrete example of  $N_I$ . There was more time for research in the University College sector than there had been in school and although I made use of the library, the advantage of having a computer on my desk with a hard-wired connection was a considerable help in this process of professional development. As I searched the websites of faith communities to learn more about them, their beliefs and values, I also became more aware of pedagogic agents, like search engines and asynchronous conferencing tools that would allow me to 'ask an expert' or 'get instant feedback'. These were ideas I tried to incorporate into the development of RE-Net. I realized that what was happening was a 21<sup>st</sup> Century version of the hermeneutic circle of liberation theologians about which I had taught students at A Level. In other words I was living the dynamic cycle of experience informed by knowledge and knowledge informed by experience. The more I used the internet the more I could see how it could be used to inform and enrich the learning opportunities of RE teachers and their pupils.

Phil Poole had been developing Christ Church's web presence with a small team of technical staff. They had procured a number of software tools<sup>81</sup> which were designed to speed the process. Recognising the immediate benefits of so-doing, I set about learning to use these tools and RE-Net version 2.0 was born.

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<sup>81</sup> E.g. *HTML Assistant*, *Paint Shop Pro*

## ***Appendix 4 - IM3 – 2002***

In the summer of 2002, I was invited by the then Dean of Education to examine the bid documentation for a project which the Faculty was keen to win. The task was to review the tender, write a summary report, and to make a recommendation to the Faculty's management team as to whether or not there was any point progressing towards the submission of a bid. The project, which I later referred to as 'E-China', was designed to deliver high quality English teacher education to the Chinese context. The successful bidder would need to provide a network architecture and infrastructure capable of sustaining potentially millions of concurrent users of an online service, as well as pedagogic consultancy, English language tuition and British quality assurance and accreditation standards.

I made my recommendation and was then presented with the task of writing the bid, in a week. In that week I had to get my head round the technological challenges of scaling up to a million concurrent users of a VLE, the principles and practices of distance education, the challenges and protocols of working in another culture and in another language and the 21<sup>st</sup> Century imperative to form 'partnerships'. That I pulled the bid together with partners from the British Council through to a range of technology companies is a footnote in history; that the bid was lost to Nottingham University is also a fact of history. Why this is relevant to these doctoral studies is for the unintended outcomes of that burst of activity.

Critical to the success of the project was my need to get my head round the principles and practices of International Education and I was put in touch with some experts in this area at the University of Bristol, School of Education. Through this network, I became aware of the Asia Pacific Society for Computers in Education and its annual conference which, in 2002, was to be held in Auckland, New Zealand. My interest in New Zealand had been awakened in Primary

School when we had been given a New Zealand Education student for what I now realize was teaching practice, some time in the equivalent of year 4<sup>82</sup>.

So, when the chance came to bid for funding to attend the International Conference on Computers in Education (ICCE 2002), I took it enthusiastically. There is a whole book, or at least a chapter, which sets out all the things I learned on that two week trip. Indeed some of the learning was written up in research and professional development reports so it exists in the public domain already. Recognising the good fortune of travelling to the other side of the world, I kept an assiduous journal of the trip - now cited in this thesis as appendix 1 - which comprises travel details, reflections on the things I was experiencing but also entries made where I was attempting to relate such experiences to the professional context out of which I was working at home. The things that are relevant to this thesis are however,

- The profound moment of enlightenment I experienced in front of the *Marae*, in *Te Papa*, which is the Maori cultural museum in Wellington
- My meeting with and learning from Pithamber Polsani of the University of Arizona
- My observation of academics from Pacific rim countries creating, transferring and building new knowledge in partnership and consultation

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<sup>82</sup> I recall clearly working with a classmate, Gary D'Cruz, on a project on her native homeland and its two islands. This curiosity had been further extended by two sisters who volunteered as cub scout and scout leaders of the 28<sup>th</sup> Croydon troop to which I belonged from the ages of 7 – 14. During the 1974 coal strikes, by candlelight, we performed Maori dances in the Maori language in costumes our parents had made at the troop's gang show, as we waited for the power cuts to be over. Vivid, powerful and influential memories. The awesome power of the All Blacks Rugby team had also captured my imagination as my extra-curricular interests migrated from scouting to Rugby and Cricket. I had followed with interest the Rugby career of John Gallagher, who was eventually dubbed, "The World's Greatest Rugby player". I knew him and his brother Mick as we were growing up and I was fascinated by the unusual route by which he had come to wear the famous all black jersey under the silver fern. Moreover since the early 1990s, I had been a fan of Crowded House, the later embodiment of a new wave band called Split Enz, whose origins were New Zealand and whose lyrics evince aspects of life in their home country.

- My discovery of the notion of rhizomic networks

The early part of my tour of the North Island was facilitated by academics from Massey University who I had been fortunate to meet in England. The second couple with whom I stayed urged me to visit *Te Papa* as, for them, it held special significance. The time available for sight-seeing was limited so I decided to confine my visit to the exhibition of Maori culture. The centre piece of this fantastic celebration of the indigenous people is the fabricated *Marae* made from Medium Density Fibre Board (MDF). This is significant because, as I learnt there and also in Rotorua at the National Maori Centre later in my tour, strict rules govern the fabrication of traditional or heritage buildings. *Marae* should be made from traditional Kauri wood, carved by first generation Maori craftsmen whose ancestral claims to authenticity have to be certificated and verified<sup>83</sup>.

In ancient Maori culture the *Marae* was the heart of the village and was the storehouse for food and weapons. Decorations and adornments told the stories of the Maori people in order to preserve their foundational stories, the ‘folklore’ and spirituality. Rendering a *Marae* in a modern synthetic material (MDF) had been, at the time of its construction, a controversial start in life for the *Marae* at *Te Papa*. However, the Maori people have a strong sense of morality and also a keen sense of the need to live in harmony with the planet and its ecosystems. For modern Maoris, the use of a sustainable construction material created from properly forested plantations was a moral act of greater rectitude than the absolutist preservation of an ancient

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<sup>83</sup> Interestingly, Lave and Wenger (2008) report that, ‘apprentice Yucatec midwives (all women) are almost always the daughter of experienced midwives – specialized knowledge and practice is passed down within families. This is also true of the Cognac producing families of the Jarnac region of France. A further moment of interest for me in New Zealand was a visit to a vineyard in Hawkes Bay where I learned that the ancient wisdom of French viticulture had been imported to act as the foundational knowledge base for the now, very successful, wine industry. Old ideas, new environment, replicable industry. How the human network learns!

culture. I was deeply moved by this as a former teacher of RE with more than a passing interest in ancient cultures and spiritualities but I was also moved for the following reason:

Old knowledge and understanding were being shaped, modernized and made moral through the gift of technology. In Maori culture, wisdom was passed down by word of mouth from the elders sitting in the *Marae* and in times of challenge the people would go to the *Marae* to work together collaboratively to find solutions to new and emerging problems. It is possible to argue that the *Marae* was therefore a knowledge building environment. At the conference there were a number of presentations which centred on computer assisted learning as the Zenith of constructivist learning. Of note was a keynote presentation by Lewis (2002) which compared the knowledge building and transfer culture of the Italian region of Cremona in the 16<sup>th</sup> and 17<sup>th</sup> Centuries with so-called ‘Silicon Valley’ in Palo Alto, California from the 1970s to the present day. Cremona was the home of expert craftsmen such as the Stradivaris, the Amatis and Teccler, known now through their outstanding musical instruments. California remains the home for expert computer manufacturers such as Hewlett, Packard and Bell, Jobs (Apple), and Dell. Lewis’ (2002) thesis was that creativity and craft proliferated in these technological centres through various models of knowledge construction and transmission. Old ideas handed down from generation to generation or from corporation to corporation by modelling, instruction, co-participation or apprenticeship. Just, as I had seen at *Te Papa*, in ancient and enduring Maori civilization and culture.

At the same conference, Polsani’s paper (2002) introduced me to the new concept of ‘rhizomic networks’. The rhizomes of an Iris, flowers that grew abundantly in the gardens of my parents and grandparents and thus familiar to my early experience and interaction with the world, contain the genetic blueprint that enables the reproduction of new plants even when cut off from

the existing parent. Evolutionary theory would show that the new plant is not an exact replica of the first but its structure, colour and fragrance are more than redolent of the original. Even if the parent plant were to die, its existence would be carried forward, albeit changed, in newly developing rhizomes. Computer networks, argue Polsani (2002), replicate this behavior. All over New Zealand, I observed the characteristic infrastructure of 10/100 mbps networks: Cisco switches, Ethernet ports, Cat 5 cabling and increasingly ubiquitous wi-fi access points. Even if the parent network of an organization is shut down, relocated, pruned or rationalized, replicas of the network continue to proliferate, grow and spread. The DNA of a computer network is code. It gets edited, changed, copied, deleted and replaced but it can pop up again in some other place, even in an attenuated form, because its essential building blocks and characteristics endure. Polsani's thesis (2002) is that it is information flow around the network that causes this dynamic and iterative effect. The 'network' is itself both the subject and object of information 'flow'. As information 'flows', so the network learns.

It was in this instance that it dawned on me that human learning and technology were bound together in an inextricable relationship with knowledge, reflection, action and participation co-equal components of the process. Professionally, I realized that a technologised educational setting developed for one formal learning process, could be replicated seamlessly for myriad others. Polsani's introduction to the concept of a reusable learning object (RLO) ([http://www.ltc.arizona.edu/testimonial\\_polsani02.cfm](http://www.ltc.arizona.edu/testimonial_polsani02.cfm)), in an informal conversation later in the conference, gave me further pause for thought about the potential of technology to increase access, enablement and the facilitation of learning, whilst at the same time reducing effort, bureaucracy and expense.

It was on this trip also that I observed academics from all round the world ‘teaching’ their students through virtual learning environments. Paper after paper reported on participant observation research or action research type projects where the presenter proudly revealed ‘what they had been doing with their students’ in asynchronous, synchronous, distance-based, virtual or other settings. Even before I arrived at the conference I had been privileged to observe Mary Smith (Massey University) tutoring a group of Fijian education students using WebCT. For Mary, her partner Bill Anderson and others, online learning was just the next generation of distance education. Since New Zealand, *Aotearoa*, ‘is at the bottom of the world’ (Split Enz, Chrysallis Music Group 1979), thousands of miles from anywhere else, Kiwis have always understood the need to study at a distance. Indeed, as I was to discover later in the trip, for many Kiwi children, schooling is only possible by remote engagement with curricula, tutors and resources. Technology, according to Anderson et. al. (2003), just made it a lot easier and more cost-effective. The point here very simply is that Situated Learning (Lave and Wenger) is dependent on where the learner is, not where schooling takes place. Thus it is possible for a Fijian student of Education to have ‘legitimate peripheral participation’ even though the technological means by which this occurs is sitting on a server farm in Oslo, Norway<sup>84</sup>.

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<sup>84</sup> At the time of writing, I am supporting pupils and teachers with their learning of how to use *Fronter*, a virtual learning environment which is hosted in Oslo, Norway.



## ***Appendix 5 - IM4 – 2003-2005***

Though we failed to secure the E-China project, the knowledge, skills and experience that was developed at CCCU during that time fed-forward into a range of other projects. An unintended outcome was my promotion into the Faculty's management team and the acquisition of the role 'Director of Learning and Teaching with ICT'. It was from this position that I began to participate in nationally important groups and projects, most significant of which was the TDA's ICT in ITT Steering Committee. In a parallel development, colleagues in the acclaimed Centre for Enabling Learning, were working with a range of partners on the construction, management and roll out of the Initial Teacher Education Professional Resource Network (IPRN) *Behaviour4Learning*. The TDA, under the direction of Dr. Marilyn Leask, were attempting to build capacity in the ITE network by the development of a series of professional resource networks with a major website as the centre piece. *Multiverse* and *Citized*, were variously responsible for the promulgation of quality assured materials to support development of knowledge, skills and understanding in diversity and citizenship. Leask was uncompromising in her belief that student teachers, especially those on non-traditional routes into teaching, should have easy access to quality assured materials and expertise (see Leask and White, 2004, Leask 2010). She was an advocate of the peer-review approach to the maintenance of academic standards and rigour, something that she unapologetically carried forward from her background in Science education. Her work was self-referred to the benchmark of the National Institute for Clinical Expertise (NICE). Leask had also persuaded the TDA to fund the development of Subject Resource Networks and a range of teaching and learning projects aimed at evincing and promulgating up-to-date theory and practice in each of the curriculum areas. Moreover, she had persuaded the TDA to fund a portal for SEN activities and an E-librarian. The E-librarian project was designed to enable enquirers to get access to reading materials online, but with appropriate professional academic standards applied to their searching and browsing.

Frustrated by the tardiness of the academic community and its teacher education students to pick up and run with this glut of online resources, Leask tendered for the procurement of a meta-site, an online resource capable of aggregating all the Crown materials that had been authored across all the pre-existing projects.

In 2003, CCCU employed the Deputy Director of *Behaviour4learning* and the intellectual property owners of the underpinning theoretical model, the National Director of *Citized* and two of its authors and a leading member of the National Association of Music Educators. Moreover, the Dean of Initial Teacher Education and CPD at the London Institute of Education was a sponsor of *Multiverse* and former CCCU, Head of Department – Jon Davison. Academics supporting Modern Foreign Languages development through CILT, were part of the CCCU diaspora and so it is justified to claim that the University was well-connected across the sector and was in as good a place as any to bid for the work. Moreover, *Behaviour4learning*, the E-Librarian service and *Multiverse* were all supported through web-based technologies constructed by 3T productions, a subsidiary of RM, who were thus professional and commercial partners with staff at CCCU.

In my role as Director of Learning and Teaching with ICT, I was encouraged to represent the University at the potential bidders meeting and was introduced to RM's Business Development Manager, Paul Charman, with a view to putting together a consortium to bid for the work. It has been documented elsewhere (Blamires & Hughes, 2005) that a partnership was formed, was successful in securing the contract and eventually delivered what is now known as the Teacher Training Resource Bank ([www.ttrb.ac.uk](http://www.ttrb.ac.uk)).

The narrative above has been recorded to set a context for what follows because its relevance appears tangential at this stage.

Relevant at this stage, however, is the fact that in order to undertake my duties as National Director (Networking), it was essential to understand fully the ‘product’ we were developing. This meant learning very quickly all about and how to construct a ‘Content Management System’ (CMS). This, in turn, required me to learn the principles of knowledge management and the critical importance of information schemas and semantic tools. One of our partners was the Director of the British Education Index, Phil Sheffield, from the University of Leeds whose contribution to the project was formidable in terms of the accuracy of taxonomic effort and descriptions of content. I learnt from him meta-tagging, information structures and the politics of professional boundary transgression. He was as concerned about the untrammelled expansionist tendencies of learning technologists as I was. “They’ve stolen my clothes,” he said, when reflecting on the learning technologists’ practice of defining how knowledge should be organized and described – a sentiment echoed by lecturers infuriated by the tendency of learning technologists to acclaim their ‘discovery’ of pedagogy.

Our task was to build a website on solid epistemological principles which would reflect the structure of knowledge in the domain of teacher education and would thus provide easy access to quality assured materials that had been peer-reviewed by leading academics across the sector. The site had to be refreshed on a regular basis, be copyright free and accessible from anywhere in the world. Specifically, I was tasked with negotiating with each of the subject resource networks, the release to us of their Crown copyright materials, those ‘assets’ that had been paid for by Dr. Leask’s other TDA funded projects. It became necessary to sell to each association

the value of participating in the project, the value of ‘tagging’ material accurately and the advantages of central hosting of web-based materials.

It became necessary to learn how to tag work, to access and use the content management system and how also to extract the data reports that the TDA required, on a very regular basis, to justify their use of taxpayers’ money. It was during this period of my professional development that I learned the most about the utility and functionality of databases, especially where they are hosted online. I had to learn the principles, if not the practice, of coding Structured Query Language databases (SQL). I learnt a huge amount about the handling of video over the web and, indeed, led a series of workshops around the country hosted by the TDA on deconstructing Teachers’ TV programmes and re-editing them with *Windows Moviemaker*.

It was a privilege to be part of team of real experts, those at the top of their game whether it was programming, librarianship, business development, academic reviewing or capacity-building. It also gave me an insight into the commercial aspects of contemporary education life. It was necessary, on a strategic level, to develop relationships with colleagues managing other Education-focused portals such as the National Education Evidence Portal (NEEP) and the Centre for the Understanding of Evidence in Education (CUREE). Understanding the functionality and utility of web technologies became an urgent development imperative for my personal skill set.

## ***Appendix 6 - IM5 – 2006***

Involvement with the TTRB brought me into contact with many other professionals working at the interface between technology and Education. Preparatory work for the validation of an MA in E-Learning enabled me to research the field with a view to providing an appropriate academic context in which to set this new programme. Development work with Hibernia College in Dublin, Ireland on a completely online initial teacher education programme and my ongoing work as Director of Learning and Teaching with ICT also drove my sustained analysis of the tools available for teacher education. At this time, the TDA were providing extensive grants to Faculties of Education (HEI providers of ITT) as a strategic attempt to ‘raise the bar’ of teacher engagement with technology.

Post-NOF<sup>85</sup> discussions had resulted in the view that one needed to crack the issue of access to technology before moving on to increase levels of participation and engagement. An outcome of this analysis was the rolling out of funding to HEIs to procure new and innovative technologies. I managed a sequence of such projects which I termed JANUS<sup>86</sup>, on behalf of the Faculty which meant engaging with a range of key stakeholders. A vocal minority of the staff were keen enthusiasts of Apple Macintosh Computers. They argued that Microsoft only environments were creating unhealthy monopolies in schools and that, the tools provided by Apple were more ‘cool’, more ‘innovative’ and potentially more ‘creative’. It was decided, therefore to purchase a number of ‘macs’ and explore their possibilities for learning and teaching.

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<sup>85</sup> NOF is the acronym associated with the New Opportunities Funding that became available in the late 90s, some of which National Lottery derived revenue was targeted on a massive programme of teacher professional development in technology. The success of this project has been written about extensively elsewhere. Its relevance here is in the ambition of the TDA to not repeat its mistakes, one of which was the perception that insufficient support (financial) had been provided to HE providers to equip their own staff in order to cascade ‘best practice’ to their students.

<sup>86</sup> I called them JANUS after the two-headed Roman god who lends his name to the month January. One head is oriented to the past encouraging a respectful acknowledgement of one’s heritage and history; the other looks to the future. Symbolically, I wanted to show that we were drawing on the insights of others who had gone before but that our trajectory was forward-looking and prospective. As an acronym, I presented the suite of projects to the Faculty Management Team as ‘Joined-up And Networked University Solutions’.

One of the attractions of the ‘mac’ was its bundling together of software tools into the product suite *iLife*. The adoption of the prefix ‘i’ to everything that Apple did, may have been a conscious commercial ploy on their part to move away from the ‘e’ of contemporary word-smithing as a signifier of anything driven Electronically. Most famously, and now regarded as iconic of the early years of the 21<sup>st</sup> Century, was the prefixing of the ‘i’ to Pod in the branding of the now ubiquitous handheld, mobile entertainment device. Elsewhere in this thesis, I have talked about the **impact of this ‘i’ on the development of my thinking, practice and professional identity.**

I believe that its significance was ‘teed up’ for my thinking by the work of Fullan (see Fullan, 1999, Fullan et. al. 2010)), whose notion of the three Is of educational change, I had had to learn well enough to use as an undergirding theory for some professional development work I had undertaken for the States of Jersey, Education. Innovation, Implementation and Institutionalization (Fullan, 1999) were regarded as three contingent phases of a school change management programme. Fullan’s argument was, that many school development programmes fail because they do not reach the phase where they become institutionalized. My daily, lived experience at that time was that technology implementations remained only at surface level. **Colleagues** who booked holidays online, bought academic books from Amazon, used e-libraries for their research, sold second hand books on e-bay, used PIN numbers to withdraw cash from computers built into bank walls, told me over and over again, that they could not see a value of using technology in teaching and learning. They “could use a word processor, but not much else.”

Suggesting that we ought to move more and more of our learning activity into e-enabled settings (Universities at this time were experimenting with Virtual Learning Environments - VLEs), was

greeted, in the words of Monty Python, with ‘howls of derision’. The arrival of the ‘i’ in computing nomenclature was either a fluke of history, a happy coincidence or a serendipitous act of the Apple Corporation and Education Change Management theory.

Reading around postmodern theory, and encounters with West (see e.g. 2004) had encouraged me to ‘play’ with ideas, theories and tools. So I ‘played’ with the letter ‘i’, wondering what it might stand for in iPod. Various words emerged from this reflective process: interactive, integrated, intelligent, international, internet-based, innovative, inspirational and so on.

Clearly, the ‘i’ in iPod was intended to identify the device with its user. This was, in technology terms, the pinnacle of personalized computing. The user could accumulate, arrange and access their choice of entertainment at the flick of a wheel. Applied, in the context of Education, a user could accumulate, arrange and access – at their own convenience and in their own time – those materials and activities they required to advance their own personalized learning agenda.

Since the constant riposte to my home department’s invitation to teachers to engage in professional learning activities usually included some complaint of a shortage of time, or lack of financial resources to go ahead with the activity, I began to see the potential of truly online, personalized learning. What if CPD could be interactive (technologically), integrated (into a teacher’s professional and personal life), intelligent (in other words based around research-informed practice) and international (drawing on insights from around the world, even if the participant could not travel) I wondered? Elsewhere I argued, that these 4 ‘i’s, when taken together and enabled technologically could render a powerful professional learning experience for any teacher – I named the nascent model  $i^4$ PD (Hughes, 2006), where PD stood for

Professional Development. The response to this paper was sufficiently positive to encourage me to play more.

I discussed the value of the model with Glynn Kirkham and he suggested a further iteration. He argued that limiting the number of influences to four might reduce the possibilities of the model and that the adoption of the signifier <sup>n</sup> would be more appropriate in enumerating *i* initialed adverbs. Accordingly, I adjusted the model to *i*<sup>n</sup>PD. It was this theoretical model that underpinned all the work that I then undertook in the development of *iteach* ([www.iteach.ac.uk](http://www.iteach.ac.uk)), in partnership with colleagues at Hibernia College, Dublin, Ireland. Together we designed, developed, validated and delivered a suite of courses that enabled remote and distributed learners to qualify to teach Secondary Maths, Physics and Chemistry using a fully web-based and online learning system. Only the ‘*practicum*’ modules were conducted in traditional settings i.e. classrooms. Thus we delivered a personalized learning experience for persons otherwise excluded from teacher training who could fit their study around the rest of their life (*integrated*), using tutors from all over the world (*international*), with high quality *interactive* tools and by making the best of using *intelligent* technologies and pedagogical agents. Whilst it could be argued that this was in fact *i*<sup>n</sup>ITT, it was the case that none of the participants in cohorts one and two were new graduates; rather all had had careers of one sort or another and were thus looking to develop professionally in order to be able to teach – thus *i*<sup>n</sup>PD.

Confirmation of the possibilities of working in this way came in a further moment of inspiration which was provided by Professor Jim Conroy (Dean of the Faculty of Education, University of Glasgow), a keynote speaker hosted by RE-Net at the AULRE conference in July 2007, who brought his presentation with him on his *iPod*, using it as a portable hard drive. In other words, a



professional educators could carry with them, in their pocket all they need for the facilitation of learning.

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“... Because everybody’s changing and  
I don’t feel the same...”

(Keane, 2004 Universal Island Records)

## Appendix 7 - A codification of N-ness

A quick reference guide to the way in which I am using N as a shorthand code for different factors of the emerging framework. The meaning of this is only apparent on reading the main text of the thesis. For a detailed analysis of this section, please see section 2.2x and following.

$N_1$  = Need - when a self has a need to know, understand or be able to do something

NB - the use of the sub-script numerator is intended to communicate a classification of N not a calculation. This would be, say,  $N^2$  with the numerator superscript as in traditional mathematical notation.

$N_2$  = kNowledge - when a self uses its prior knowledge, skills or understanding to access future learning; it may also be kNowledge that derives from the words or works of others, the point being that its existence precedes the new learning constructed

$N_3$  = Network - human, real or virtual networks which exist for connecting people together and to enable information/knowledge flow

$N_4$  = New - the application of newly-acquired knowledge, skills or understanding in new contexts so as to test out whether it/they is/are fit for purpose and produce valid and reliable outcomes

$N^4 = N_1 \times N_2 \times N_3 \times N_4$  (each aspect of N-ness in combination thereby producing an outcome or output that could be greater than the sum of all the parts together). Further work is required to establish whether all are necessary in equal proportion for learning gains to be made.

$i^nPD$  = This was the term I used back in 2006 to describe the influence on a self of a  $i$ -factors. This marks the beginning of an attempt to codify self-directed professional learning. I was attempting to show that  $i$  to the power of  $n$  was the requirement for professional learning to occur (P stood for Professional and D for Development in this iteration of the hypothesis). At the time the  $i$ s could have been: interactive, integrated, international, internet-based, interrogative, inter-personal and so on. Here the  $n$  was the numerator not the numerated. The thesis has shifted away from focusing on these  $i$ s and is now clearly about  $n$ -ness and its contribution to what I now call *auto/pedagogy*.

In auto/pedagogy, as I see it, the formula is as below where  $l$  stands for learning gains:

$$l = N^4$$